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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, NOVEMBER 21, 1929 $6.00 a Year

150 Pounds Pressure CRANE VALVES 2500 Pounds Pressure

This installation is typical of the Crane products used in natural gasoline gas plants the world over

In knowledge of metals lies the destiny of oil men... and of Crane Co.

When Col. Drake dug his first well, Crane Co. was engaged in making brass fittings and cocks. Now, when operators are boring nearly two miles into the earth's crust, Crane Co. is making a complete line of piping materials for every oil and gas purpose.

The parallel development of these two industries is not sheerly coincident. For the development of the oil and gas industry, like many other industries, demanded the development of Crane Co.

When deeper drilling was necessary, it was the pioneering that Crane Co. had done in ascertaining the properties of metals under heavy duty that aided the oil industry to work out the valve and piping requirements of deep well control.

When long distance delivering of oil through pipe by pumping came into practice, Crane Co. was prepared to meet the needs of oil men with fittings and valves that were resistant to shock, easy to repair, and proof against leaks.

When cracking demanded materials that would withstand high temperatures and pressures, Crane engineers' prestudy in the mechanical and chemical reactions of metals under these conditions had already resulted in materials for this service.

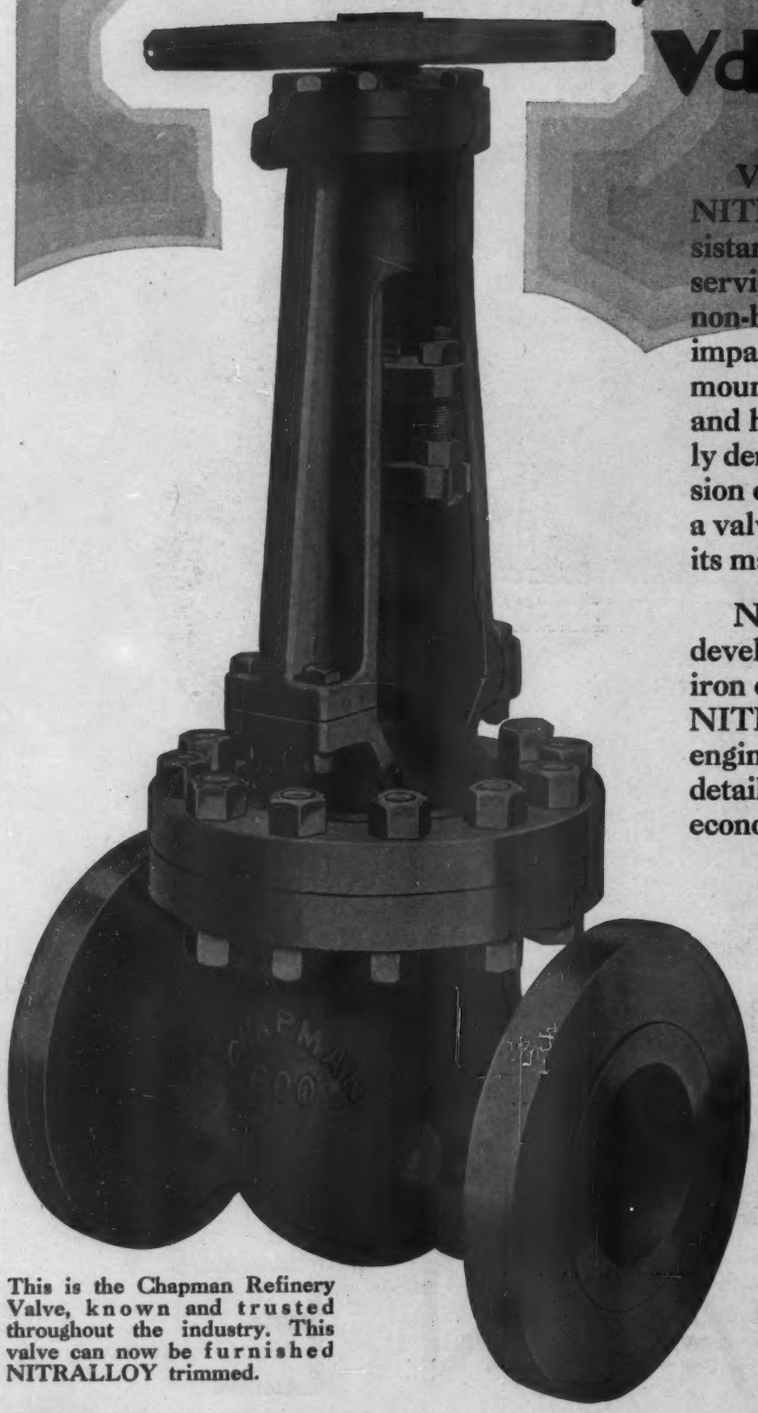
So it is that today Crane Co. has evolved a complete line of piping materials. A request from you will bring full information concerning them. So it is that its engineering and metallurgical departments are constantly working to solve problems that might hamper the future development of the Oil and Gas Industry.

CRANE

GENERAL OFFICES: CRANE CO., 836 SOUTH MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICE: 23 WEST 44TH STREET
Branches and Sales Offices in One Hundred and Ninety Cities

Advertisers' Index on Page 37 Table of Contents on Page 38

NITRALLOY vastly increases valve life



This is the Chapman Refinery Valve, known and trusted throughout the industry. This valve can now be furnished NITRALLOY trimmed.

Valve discs and seats which have been NITRIDED show most remarkable wear-resistance, under extreme and long-continued service tests. This process creates a glass-hard, non-brittle surface over a tough core of high impact and tensile strength. NITRALLOY mounted valves, under extreme temperatures and high unbalanced pressures, have uniformly demonstrated a freedom from "galling", erosion or wear hitherto unthought of. The life of a valve can now be many times multiplied, and its maintenance cost reduced to zero.

NITRALLOY in valves is a CHAPMAN development. CHAPMAN VALVES — in iron or steel body types — can now be obtained NITRALLOY trimmed. Every executive and engineer will be vitally interested to learn the details of this most recent advance step in economy and performance.

Upon request, we will send a booklet containing full details regarding NITRALLOY, and the service and laboratory tests which prove its high value. Write us.

The Chapman Valve Manufacturing Co.
Indian Orchard, Mass.

Branch Offices

Houston	Philadelphia	Los Angeles
Atlanta	Chicago	New York
Detroit	San Francisco	Tulsa
Pittsburgh	Syracuse	Boston

Distributors

Wagner Supply Co., Fort Worth

Chapman Valves

Walworth Gas Line Valve *without* By-Pass For 500 lbs. Working Gas Pressure.

WALWORTH DOUBLE DISC HIGH PRESSURE GAS LINE GATE VALVES

Walworth Gas Line Valve *with* By-Pass For 500 lbs. Working Gas Pressure.

A Complete Line

The 16″ double disc valve with by-pass, gear operated, illustrated here, is a new Walworth Steeliron valve for gas lines —rated for 500 lbs. Working Gas Pressure.

From the small 2″ iron body valve to the monster 24″ gear operated valves, Walworth's iron body, double disc valve line is complete, with sizes and types for every purpose and pressure where iron body valves are practicable to use.

Within the past few years Walworth has developed lines of double disc iron body gates especially for the oil industry, but also suitable for other service.

The double disc, parallel seat action of these valves is quick and positive, reducing leakage problems to a minimum and assuring long, reliable service. Including the 700-lb. test line, these valves for the higher pressures are made of Steeliron; and all lines, including the standard weight valves, are bronze mounted, with bronze stems.

Pressure ratings are as follows:

Standard	175 lbs. Cold Oil, Water or Gas
700 lb. Test	400 lbs. Cold Oil, Water or Gas
1000 lb. Test	500 lbs. Cold Oil, Water or Gas
1600 lb. Test	800 lbs. Cold Oil, Water or Gas

Gas Line Valve 500 lbs. Working Gas Pressure

NOTE—Gas Line Valves for higher than 500 lbs. Working Gas Pressure are made of Walworth Sigma Steel.

WALWORTH

Walworth Company, General Sales Offices: 51 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; and Attalla, Ala.

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Walworth Company Limited, 620 Cathcart St., Montreal, P. Q.
Walworth International Co., New York, Foreign Representative

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $5.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

High Pressure Distribution Demands Oxwelded Pipe Joints

EXPERIENCE gained on thousands of miles of high pressure transmission lines has proved that oxy-acetylene welding produces a pipe joint that is permanently tight, strong and dependable. Oxwelded joints assure minimum leakage losses and low upkeep costs.

The Best of Everything for Oxwelding and Cutting

LINDE OXYGEN
The Linde Air Products Company

Oxweld
Apparatus and Supplies
Oxweld Acetylene Company

Prest-O-Lite
Dissolved Acetylene
The Prest-O-Lite Company, Inc.

UNION CARBIDE
Union Carbide Sales Company

Units of

UNION CARBIDE AND CARBON CORPORATION

General Offices
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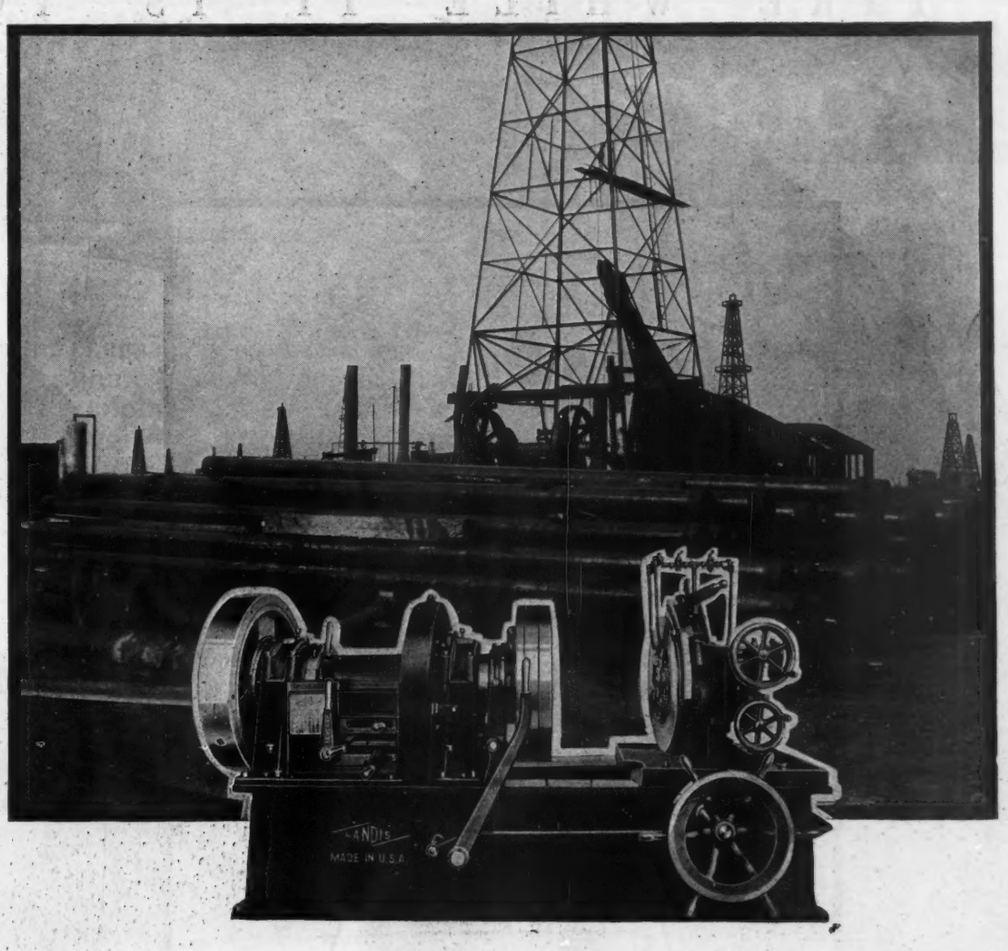
UCC

Sales Offices
In principal cities of the country

64 Linde Plants—45 Prest-O-Lite Plants—154 Oxygen Warehouse Stocks—138 Acetylene Warehouse Stocks—38 Apparatus Warehouse Stocks—235 Carbide Warehouse Stocks



There are three reasons why Landis Pipe Threading and Cutting Machines predominate in every Oil Field.

The first reason is *quality of work*. The shearing cutting action of the tangential Landis Chaser is the same as that of a lathe tool. Cleanly cut, well formed, correctly tapered threads are a result.

The second reason is *production*. The natural clearance of the Landis Chaser makes possible the use of higher threading speeds which, coupled with a highly centralized machine control, places the Landis in a class by itself for production.

The third reason is *low maintenance cost*. The long life and wide range coverage of Landis Chaser effects a saving in operating cost large enough in itself to warrant the installation of a Landis Pipe Threading and Cutting Machine.

Details will be gladly furnished upon request.

LANDIS MACHINE COMPANY, Inc.,

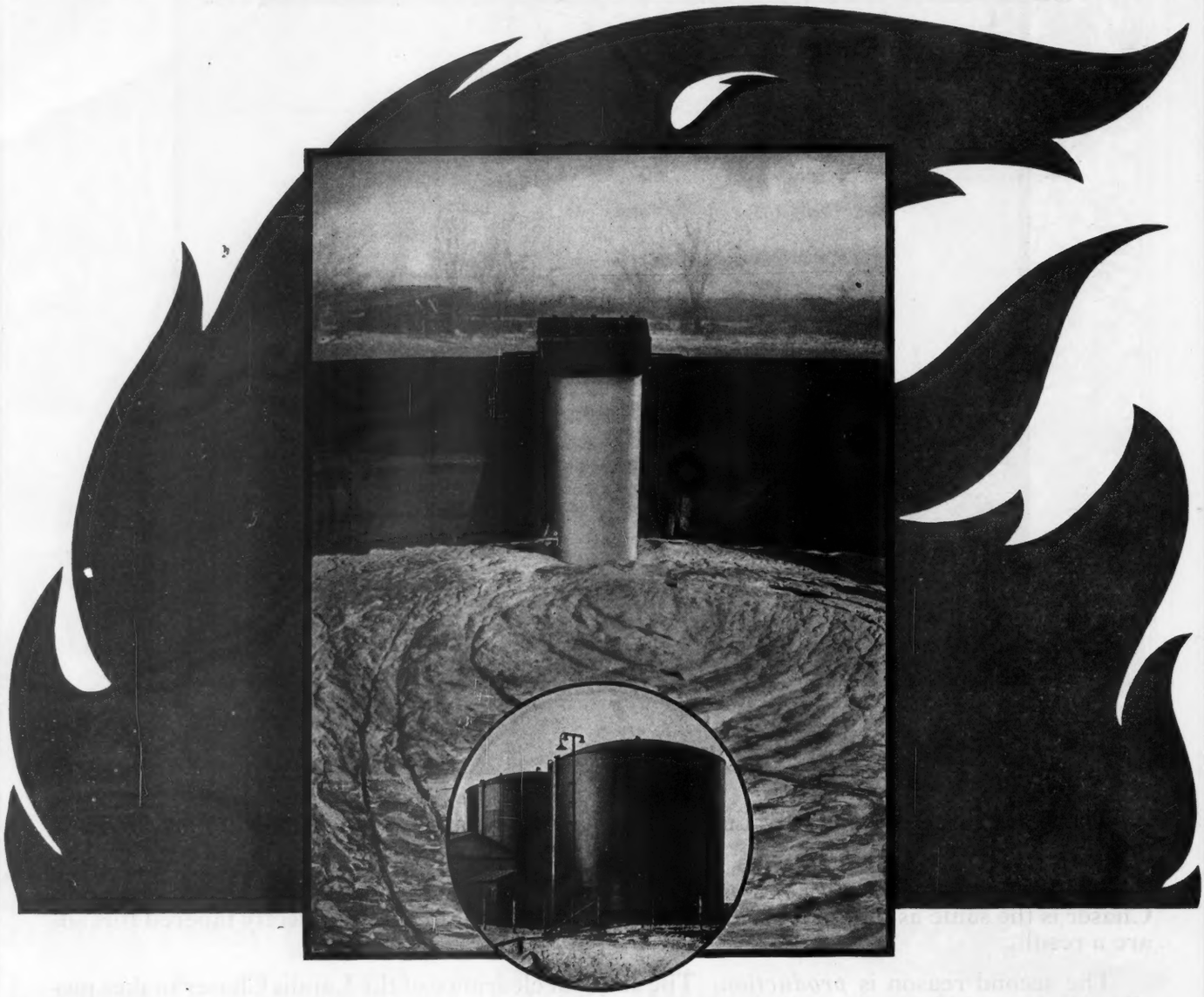
Waynesboro, Pa.

Detroit Office—5928 Second Blvd.

Cleveland Office—504-505 Marshall Bldg.

REPRESENTED IN THE DOMESTIC OIL FIELDS BY: Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; D. S. Mair Machinery Co., Houston, Tex.; Woodward, Wight & Co., New Orleans, La.; Herberts Machinery & Supply Co., Los Angeles, Calif.; Herberts Moore Machinery Co., San Francisco, Calif.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

KILL FIRE WHILE IT IS YOUNG



The FOAMITE System has never had a failure!

No matter what the early stages of the fire may have been, the ending has always been the same when a FOAMITE Two-Solution System stands guard. There has never been a failure to extinguish a tank fire where the System was a genuine FOAMITE System—designed, installed, and maintained by American-LaFrance and Foamite Engineers.

The application of *Firefoam* to the surface of burning oil, in adequate quantity and at the correct rate of flow, is not just a matter of chemicals, hose lines, pipes and pumps. It requires a system which coordinates all these factors—and which will operate efficiently as a unit, when fire breaks out.

Back of the FOAMITE Two-Solution System are five *specialized* engineering groups. Design—installation—mechanical inspection—chemical supervision—development. No detail is overlooked by this *complete* service.

Most oil companies, here and abroad, know that halfway measures and experiments with home-made systems may be—and have been—costly. Today over 90,000,000 barrels of oil are guarded from fire by FOAMITE Two-Solution Systems.

Our representatives are located at points convenient to all principal producing and refining centers. They will gladly survey your fire hazards and make recommendations. American-LaFrance and Foamite Corporation, Engineers and Manufacturers, Dept. F-34, Elmira, N. Y.

AMERICAN-LAFRANCE AND FOAMITE PROTECTION

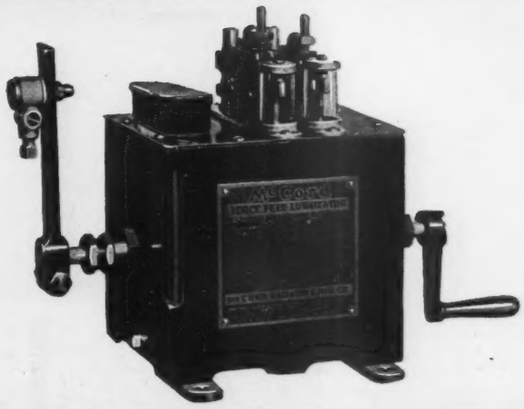
A Complete Engineering Service

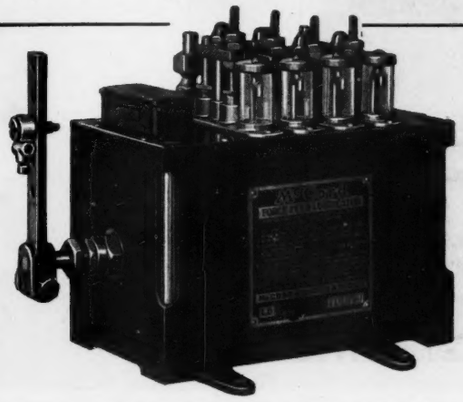
For Extinguishing Fires

McCORD FORCE FEED LUBRICATORS

McCORD CLASS "LD"—
Two Feed, 2 Qt. Capacity

It's an inherent characteristic of McCord Lubricators to deliver minute quantities of oil against high pressures. The pumping units can be adjusted to deliver quantities of oil varying from a fraction of a drop to a constant stream. Adjustments once made remain unchanged. They are not affected by extreme temperature changes. They deliver the same quantity of oil regardless of viscosity.





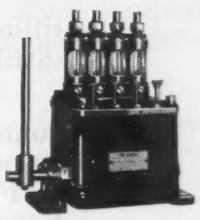
McCORD CLASS "LD"—
Four Feed, 1 Gal. Capacity

A McCord Lubricator is the only one of its kind that shows the oil actually being delivered to the cylinder or part being lubricated. Another safeguard that makes for dependable service is that undetected leakage is impossible. The construction of McCord Lubricators makes immediately evident any leaks since oil will accumulate on top of the reservoir.

McCORD CLASS "LF"—MECHANICAL LUBRICATORS

A McCord Class "LF" Mechanical Lubricator installed on your pipe line engines assures uninterrupted and absolutely uniform delivery of oil to power and compressor cylinders irrespective of temperature, pressure, or rate of feed; the quantity varying only with variations in speed or manual changes in adjustment.

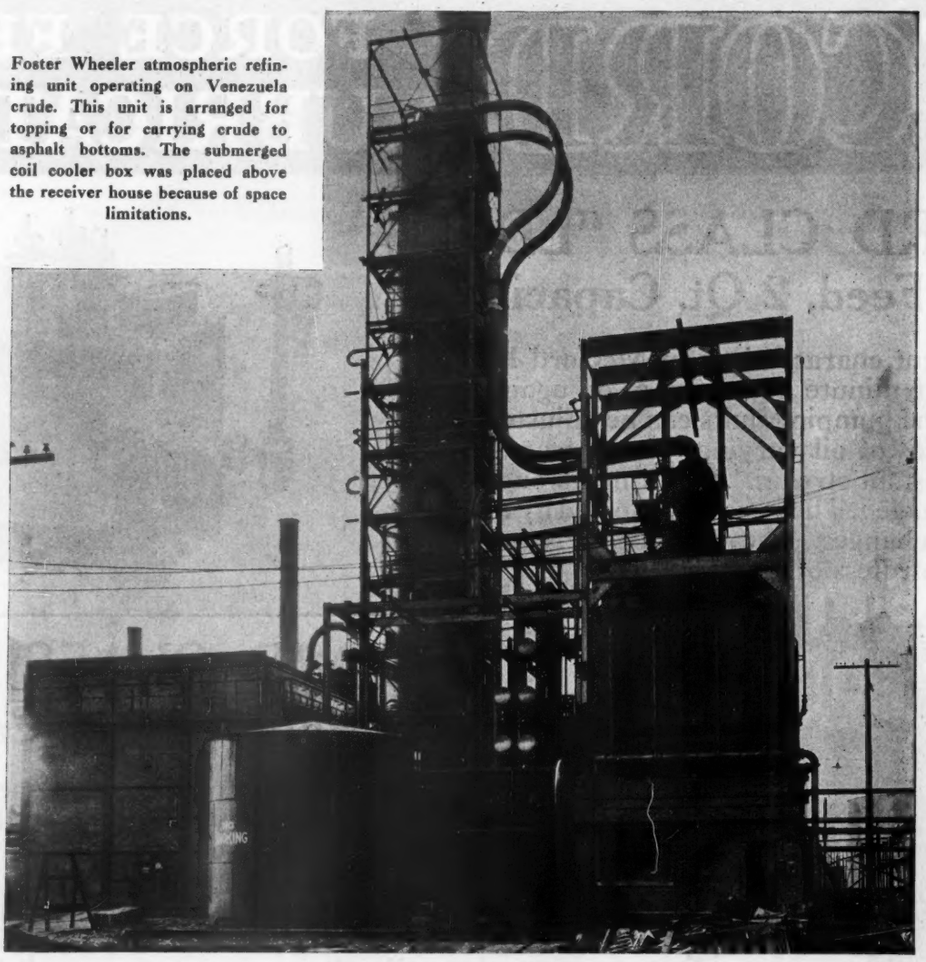
The largest and most outstanding engine installations of the year have been 100% McCord equipped.



McCORD CLASS "LD"—
Sixteen Feed, 3 Gal. Capacity

McCord engineers will gladly co-operate and make the most satisfactory recommendations upon submission of your requirements. From one of these McCord Lubricators a unit can be selected to meet any condition or service.

McCORD RADIATOR & MFG. CO.
LUBRICATOR DIVISION
Detroit Michigan



Foster Wheeler atmospheric refining unit operating on Venezuela crude. This unit is arranged for topping or for carrying crude to asphalt bottoms. The submerged coil cooler box was placed above the receiver house because of space limitations.

Atmospheric Distilling Units

Five streams to specification are recovered by the Foster Wheeler distilling unit shown above. Overhead is gasoline, with side streams of furnace distillate, light gas oil and heavy gas oil. Asphalt is taken off at the bottom.

This equipment has a capacity of 7,500 barrels of crude per day when running to asphalt bottoms, but is sometimes used as a topping unit with correspondingly increased throughput, thus demonstrating the flexibility typical of all Foster Wheeler equipment. The installation includes Foster Wheeler fractionating tower, tube still, heat exchangers, control room and receiving house.

The entire refining unit was designed and completely erected, ready for operation by the Foster Wheeler Corporation.

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.
Branches in Principal Oil Centers .

Foreign Associates:
Societe Anonyme Foster Wheeler; Paris, France.
Foster Wheeler Limited; London, England.
Foster Wheeler Limited; Toronto-Montreal-Vancouver, Canada.

FOSTER WHEELER

The unusual care which South Chester gives to Crusher Tests and all other tests and inspections makes for satisfactory service in the line.

One Hundred Miles of Plain End Welded Pipe Without a Single Leak

Field test on the one hundred mile line, of which these trainloads were a portion, demonstrated the free welding qualities of South Chester Pipe resulting from extreme care in selection of raw material and the freedom from crystallization and lamination so important in welded lines.

Chester also makes all classes of Genuine Wrought Iron Tubular Goods

South Chester Tube Company—Chester, Pa.

District Sales Managers:

W. E. Gibson, 801 Columbia Bank Bldg., Pittsburgh, Pa.

H. A. Morse, 30 Church St., New York City

J. P. Cooney, 715-716 A. G. Bartlett Bldg., Los Angeles, Cal.

J. P. Steele, 305 Petroleum Bldg., Fort Worth, Tex.

District Offices:

Tulsa, Oklahoma—J. D. Swartz, 1231 S. Evanston St., Tulsa, Oklahoma
Houston, Texas—H. S. Chancey, 2108 Mills St., Houston, Texas
E. L. Moseley, 3114 Tenth Street, Wichita Falls, Texas
District Warehouses: Houston, Texas; Thenard, Calif.

Distributors:

Prichard Supply Co., Mannington, W. Va., Mather and Waynesburg, Pa., LeValley, McLeod, Kinkaid Co., Inc. Elmira and Olean, N. Y.

Petroleum Supply Co., Houston, Tex., Norphlet, Ark. Wagner Supply Co., Fort Worth, Cross Plains, Breckenridge, Iraan, Wink, Forsan and Odessa, Texas.

United Pipe & Supply Co., Charleston, W. Va., Paintsville, Ky., W. K. Henderson Iron Works & Supply Co., Shreveport, La., Pelican Well Tool & Supply Co., Shreveport, La.

United Oil Well Supply Co., 712 A. G. Bartlett Bldg., Los Angeles, Cal., Great Northern Tool & Supply Co., Billings and Kevin, Mont., Kemmerer and Cody, Wyo.

CHESTER
LINE PIPE

Improved Pipe Line Protection

Three Great Wrappers

For years this Company has been experimenting with worth while improvement over the best established methods of pipe line protection.

As a result of long testing and proving in service, we now announce three types of NO-OX-ID-IZED Wrappers which put us in a position to offer 100% protection under any and all conditions:

(1) Our fabric NO-OX-ID-IZED wrapper which has been on the market and proven its worth under a wide range of conditions.

(2) An asbestos felt wrapper impregnated and coated with NO-OX-ID, gray in color. This wrapper has been adopted after several years of service under ground in most severe conditions.

(3) A fabric chemically treated, saturated and coated with the same gray NO-OX-ID as the asbestos wrapper.

NO-OX-ID "G" Applied Cold

Two new consistencies of NO-OX-ID have been developed for pipe line work based upon the experience of ten years' actual service.

They are NO-OX-ID "G" and NO-OX-ID "G Special."

They make application without heat possible at ordinary temperatures, reducing labor and equipment needed and reducing fire hazards. They give a more dense body as a coating and material that will thoroughly wet the metal surface and keep it wet with NO-OX-ID over a long period of time.

These improvements increase the life of protection and reduce cost of application.

NO-OX-ID Treated Steel Is Always Steel.

Investigate!

Dearborn methods are positive. Dearborn Service men are in the field servicing pipe line jobs.

Dearborn Chemical Company

"A House of Chemical Engineers" In Its Forty-first Year of Service to Industry.

310 South Michigan Ave., Chicago **205 East 42nd St., New York**

Canadian Offices and Factory: 2454-2464 Dundas St., West, Toronto

NO-OX-ID IRON + OX = RUST TRADE MARK

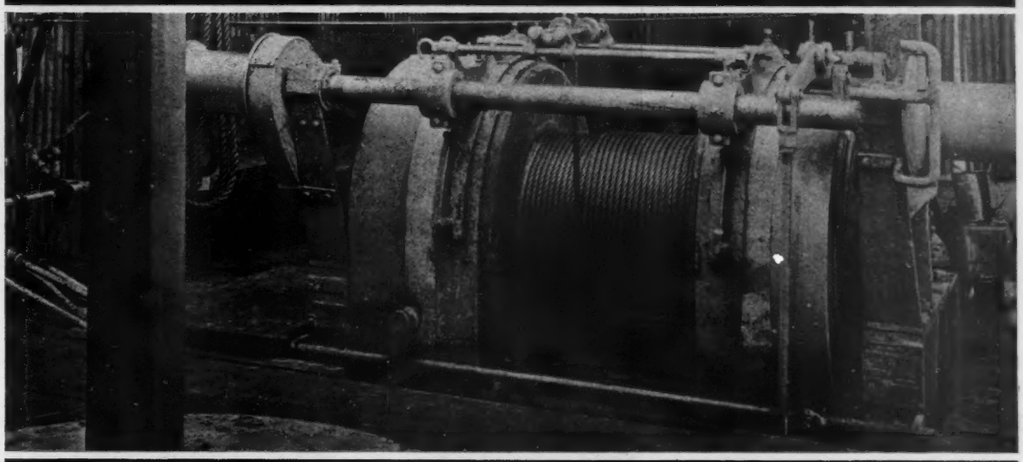
The Original Rust Preventive

DEARBORN CHEMICAL COMPANY

NO-OX-ID-IZED WRAPPER TRADE MARK

NEW YORK CHICAGO

a New Type
DRAW WORKS



AMERICANized of Course!

The HYDRIL DRAW WORKS has

—six hoisting speeds through selective 3-speed transmission and low-speed planetary drum drive. It is self-contained on rigid cast steel base without derrick framing posts.

NO WEIGHT TOO GREAT
AMERICAN
HEAVY DUTY TYPE "C"

—are being used by—

American Well & Prospecting Co.
Boykin Division, International Derrick & Eqpt. Co.
Doheny Stone Drill Company
Franklin Valveless Engine Co.
Hopper Machine Works
International Derrick & Equipment Co.
Latex Iron & Steel Works, Inc.
Lee C. Moore Co.
Lucey Manufacturing Corp.
National Supply Company
Oil Well Supply Co.
Star Drilling Machine Co.
Portable Rig Co.
T. T. Word Supply Co.

WHOEVER selected the name—DRAWWORKS—hung the right idea on the last syllable. Works is a 100% name in this case—considering the rigorous duties of this time-honored drilling standby.

Drawworks, too, have had their troubles in keeping up with demand for deeper, faster, straighter, safer and cheaper drilling.

It is, consequently, another feather in the Oil-Field-Headdress of American Bearings that the manufacturer of an entirely new type of drawworks should rest his faith in *"the standardized, heavy-duty bearing of industry"*.

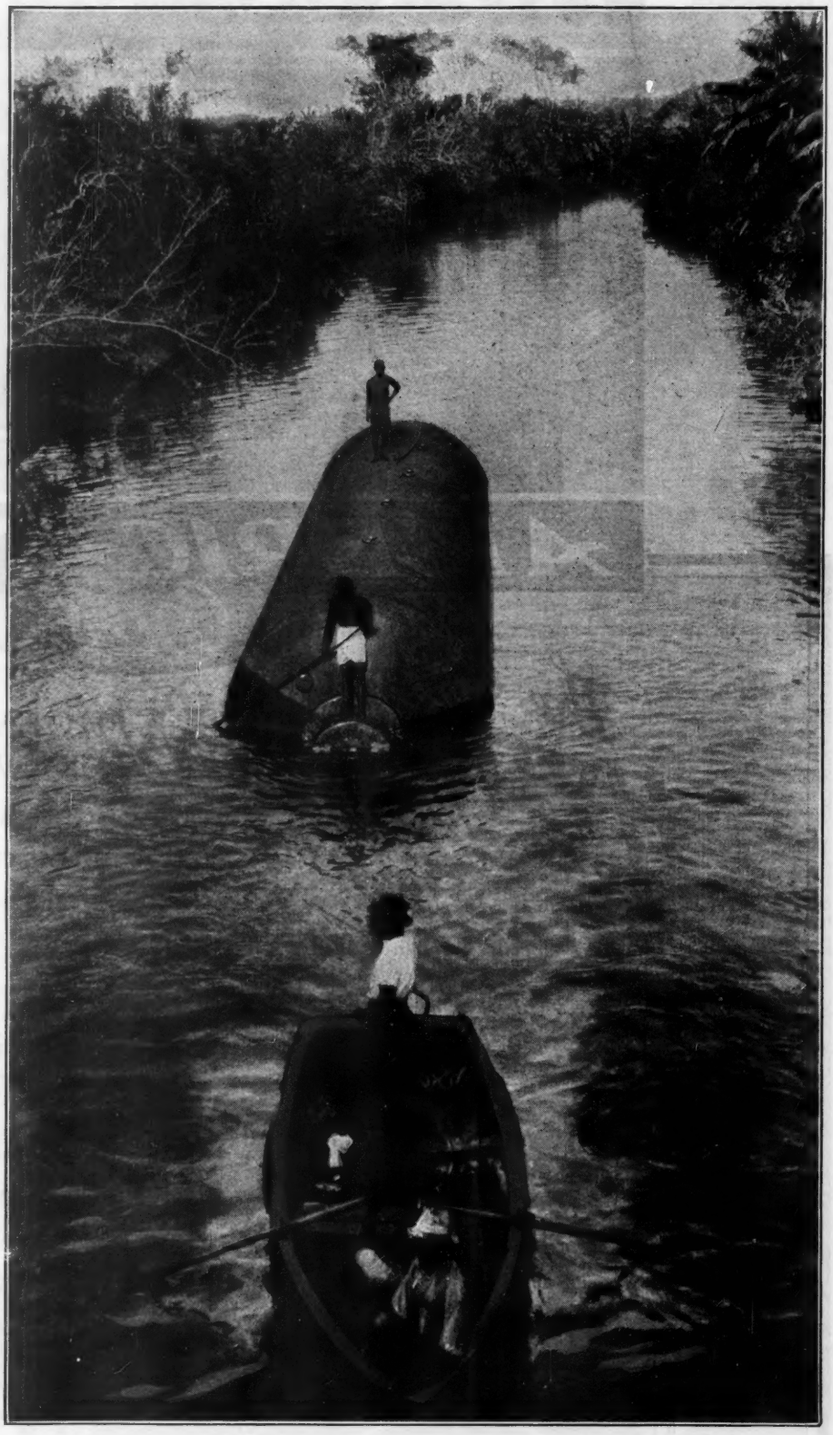
Pacific Coast Representatives

Frank M. Cobbledick Co.
1031 Polk St.
San Francisco, California

Edward D. Maltby Co.
321 W. Pico St.
Los Angeles, California

AMERICAN ROLLER BEARING CO.
PITTSBURGH, PENNA.

AT THE FRONTIERS



Beyond the lines of modern transportation, these SMITHWelded Vessels were unloaded directly into the sea, floated up the river —hauled out and rolled along the road to their destined place in an Oil Cracking Unit in the South American tropics.

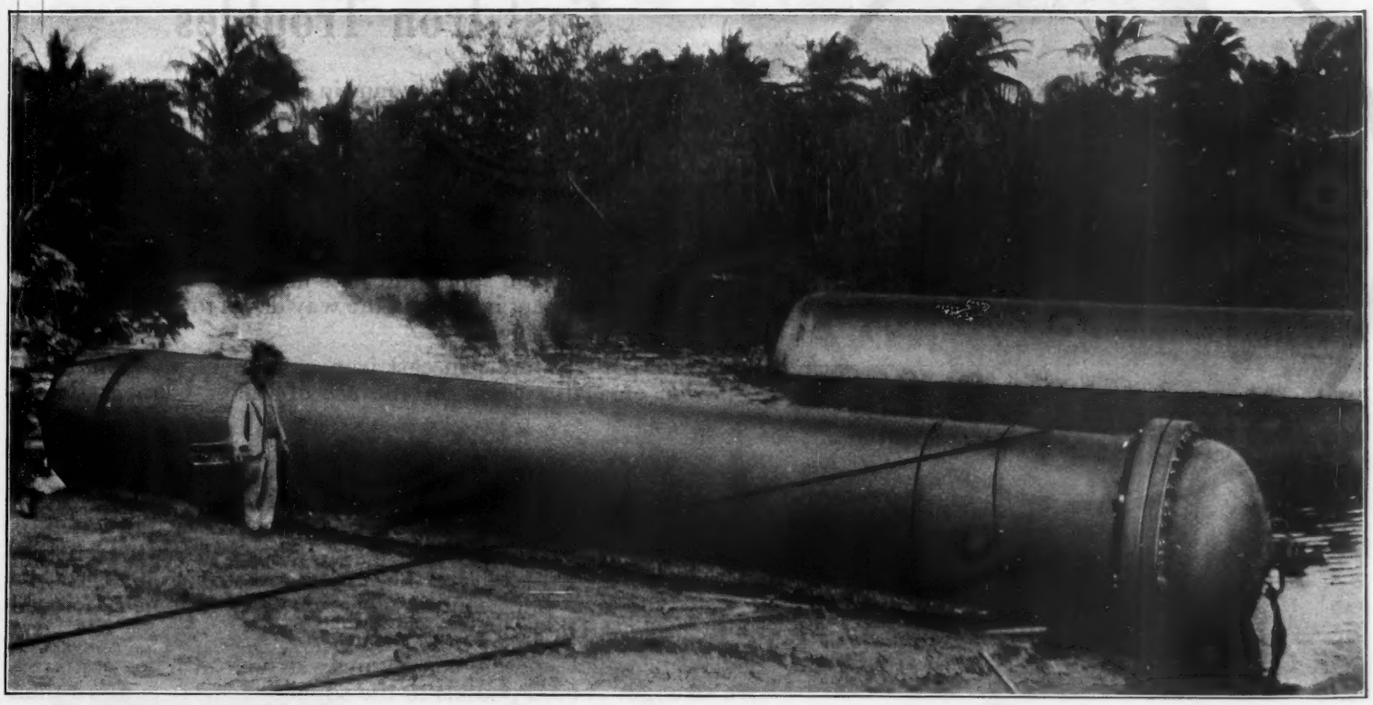
All over the world SMITH-Welded Vessels make it practicable for the oil cracking plant to go where the crude oil is.

A. O. SMITH CORPORATION

OIL AND GAS FIELD PRODUCTS DIVISION

SMITHWELDED

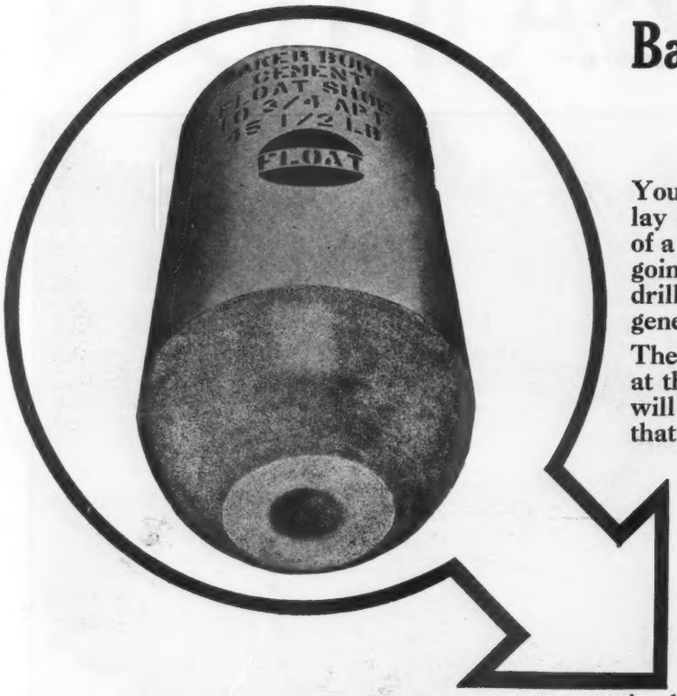
OF CIVILIZATION



General Offices: MILWAUKEE, WISCONSIN

District Offices at: NEW YORK, TULSA, HOUSTON, LOS ANGELES

CRACKING STILLS



Baker Cement Equipment Solves Cast-Iron Troubles

You know, of course, what it means in terms of lost time and delay in operations, to send a cast-iron shoe down on the bottom of a string of casing and then have to shatter that cast iron out in going through the shoe. The iron is left in the hole and when the drilling operations are resumed there is trouble — plenty of it, generally.

Then again, while a cast-iron shoe may, as a general thing, arrive at the bottom safe and sound, there is always the chance that it will be given sufficient impact on the way down to shatter it. And that means more trouble.

All of these faults in cast iron equipment are eliminated "in one fell swoop" by the use of Baker Cement Equipment.

Baker-Burch Cement Float Shoe

The Baker-Burch Cement Float Shoe, here illustrated, is a Plain Casing Shoe with a Baker-Formula Concrete guide-shaped plug cast and anchored in rounded grooves in the shoe. The plug contains an especially designed Celoron Ball Check Valve and Valve Seat.

Baker-Formula Concrete is amazingly strong—it has a compressive strength of 6002 pounds to the square inch. It is more than amply strong to withstand any impact which it may be given without fracturing or cracking. When we state that the strength of ordinary good concrete is only 2800 to 3700 pounds to the square inch, you will agree that Baker-Formula Concrete has a margin of safety for deep well operations which is more than ample for any demands which will be made on it.

The especially designed Celoron Ball Check Valve also has a wide safety margin, for it has been tested to withstand 5500 pounds to the square inch.

Both the concrete and the celoron are readily disintegrated under the drill and are easily and completely circulated away, leaving a clean hole, ready for any subsequent operations desired.

Baker Cement Equipment Is Trouble-Proof

The entire line of Baker Cement Floating, Guiding, and Cementing Equipment was not only designed right in the first place; it was tried and tested in the field, and improvements were made until it would withstand the most rigorous treatment to be expected in the drilling of deep wells.

More than two years use in oil fields all over the world have demonstrated its absolute reliability under any and all operating conditions, and you may safely and economically standardize on it for all operations requiring this type of equipment.

Baker Cement Floating, Guiding, and Cementing Equipment is the only equipment of its kind, and it is fully covered by Patents Granted and Patents Pending.

Specify "BAKER"—and be sure you get it.

WRITE FOR LITERATURE: — For the sake of efficiency, economy, and safety, you should have an accurate and complete knowledge of Baker Cement Floating, Guiding, and Cementing Equipment. Complete descriptive literature will be sent on request. WHY NOT ASK FOR IT NOW?

Put the BAKER LINE to work during the coming year for greater efficiency.

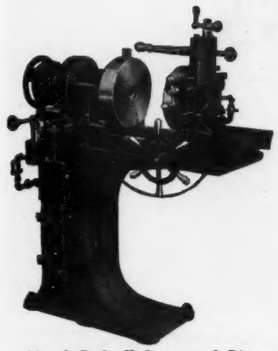
Mid-Continent Branches
Tulsa, Oklahoma Houston, Texas
Export Sales Office
25 Broadway, New York City

BAKER
OIL TOOLS, INC.
P. O. Box L, Huntington Park, Calif.
California Branches
Coalinga, Ventura, Taft, Bakersfield

Mid-Continent Distributors
B. & A. SPECIALTY CO.
220 E. Brady St., Tulsa, Okla.
2301 Commerce St., Houston, Tex.

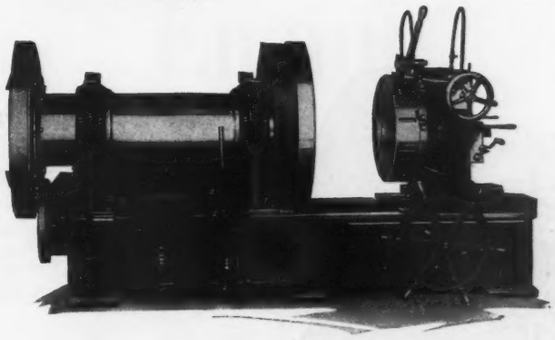
The BAKER LINE of Oil Well Specialties COMBINES Superior Performance with Economy.

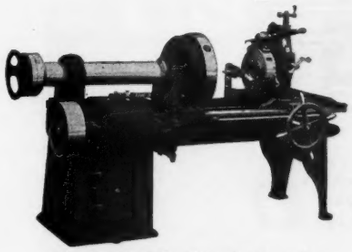
WHAT THREADING MACHINE DO YOU NEED?



No. 2 B & K Improved Pipe Machine. Pipe capacity, ¼" to 2".

New No. 12 Duplex Pipe Machine. Capacity, 4" to 13⅜" with 8 speed changes.

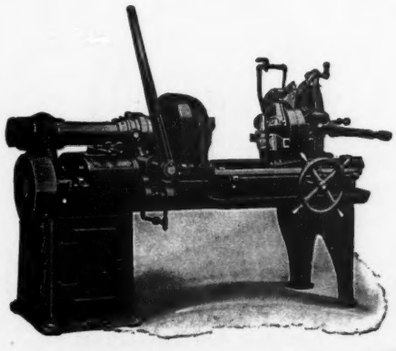




No. 2 and 3 Peerless Improved Pipe Machines. Capacities, ¼" to 2" and ¼" to 3" respectively.

B & K Meet all Requirements

THERE is a Bignall & Keeler Pipe Threading Machine best suited for your work—whether it's oil field, pipe line, or refinery service. Hundreds of users all over the world have found B & K machines speedy, dependable, and economical. They save many times their cost, and scores of them are still delivering high quality work after 20 to 30 years of continuous use. Send for our latest catalog giving complete information on 17 types and sizes. Just write for it.

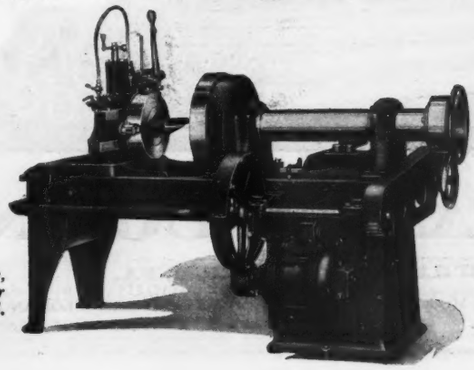


No. 2 PDQC Improved Pipe Machine with single pulley drive and Landis Die Head. Pipe capacity, ¼" to 2".

Bignall & Keeler Machine Works

of the N. O. Nelson Mfg. Co.

Edwardsville, Illinois



Rear view of Peerless Machine, showing constant speed motor drive. All gears are shielded.

PEERLESS B&K DUPLEX P.D.Q.C

OGJ 11-21 Gray

STANDARD

SEAMLESS

Since 1828

CASING
TUBING
DRILL PIPE
(Regular and Heat Treated)
LINE PIPE
STILL TUBES

Sizes 2 inch to 13⅜ inch O. D.

SPANG

WELDED

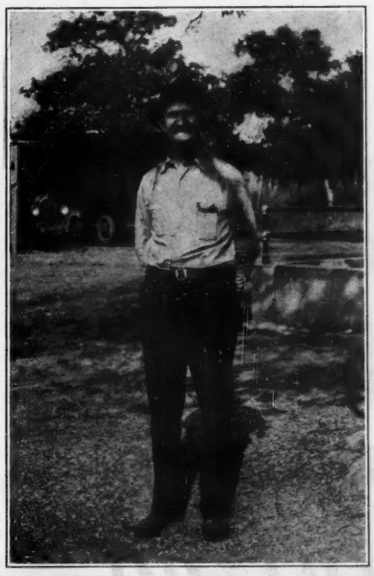
CASING
STANDARD PIPE
LARGE O. D. PIPE
LINE PIPE
DRIVE PIPE
DRILL PIPE

Sizes ⅛ inch to 24 inch O. D.

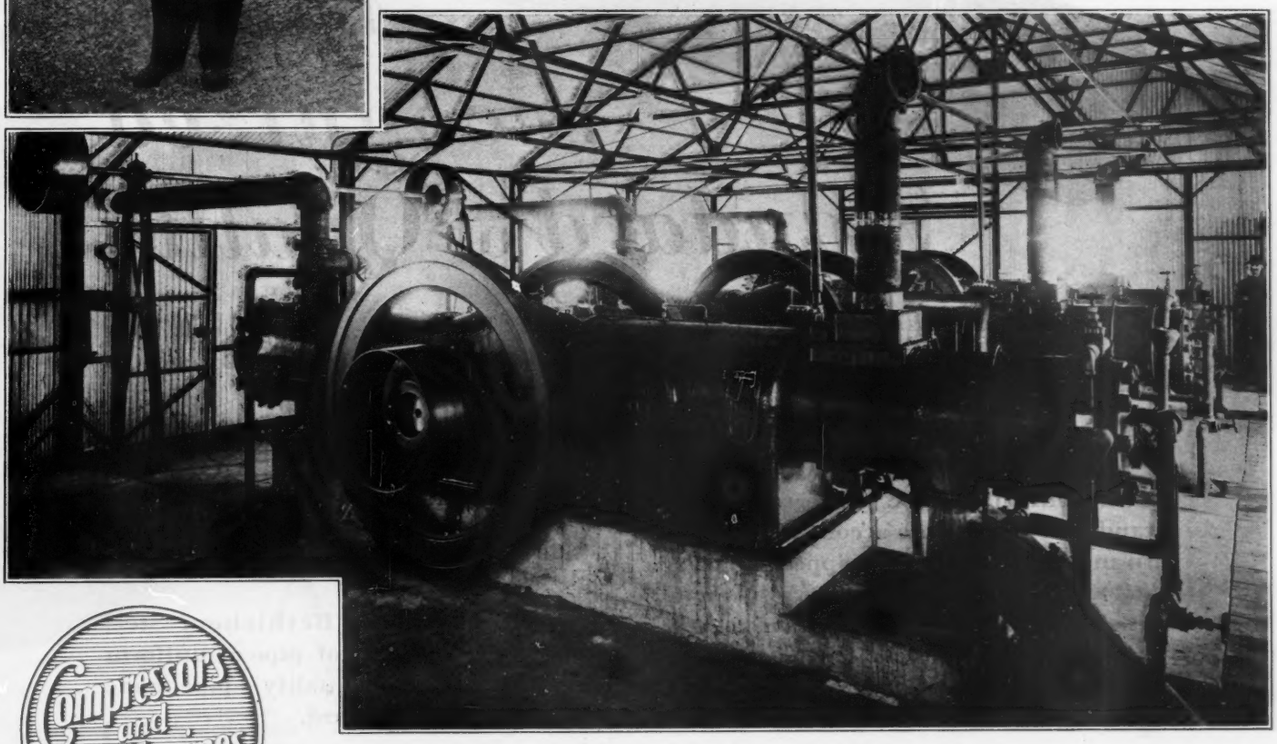
SPANG, CHALFANT & Co., INC.

General Offices: CLARK BUILDING, PITTSBURGH, PA.

Sales Offices: CHICAGO, ILL. NEW YORK, N. Y. ST. LOUIS, MO. PITTSBURGH, PA. TULSA, OKLA. LOS ANGELES, CAL.
Welded Mills: ETNA, PENNA. SHARPSBURG, PENNA. *Seamless Mills:* AMBRIDGE, PENNA.



"The Least Expensive & Smoothest Operating Engine."



Compressors and Gas Engines

CLARK BROS. CO.
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Export Office:
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Mid-Continent Sales Offices:
Tulsa and Fort Worth
Warehouses:
Tulsa, Okla.; McCamey and Sweetwater, Texas; Artesia, N. M.
California:
Smith, Booth, Usher Company
228 S. Central Ave., Los Angeles

Mr. A. B. Nigh (above), Superintendent of the J. H. Wright Gasoline Plant at Kelleyville, Okla., is one of the oldest gasoline plant superintendents in the Mid-Continent. After his many years' experience with various makes of engines, Mr. Nigh claims that the CLARK is the least expensive and smoothest operating engine he has ever operated. Operators everywhere like the CLARK because of its dependability and low maintenance cost. Ask for data on the CLARK "Super 2" which saves 1/3 the fuel required by ordinary 2-cycle compressors.

CLARK

Pipe

with a recognized Standard of Quality

Throughout more than half a century of manufacturing steel and steel products, Bethlehem has established and maintained a high standard of quality that has won wide recognition.

Bethlehem Steel Pipe conforms to this standard. It is made according to modern methods, in mills equipped with the latest, approved machinery, by men with years of successful experience in pipe manufacture. Bethlehem Steel Pipe embodies the same high quality that you recognize in other Bethlehem products.

From the mining of the ore, through the finishing operations, the manufacture of Bethlehem Steel Pipe is controlled by one organization. Each step in the conversion of the steel into pipe is carried out under the supervision of thoroughly experienced men. The tests and inspections are most critical, so as to make certain that each length of pipe shipped conforms in every way to the Bethlehem standard.

When you purchase Bethlehem Steel Pipe, you are assured of pipe of uniform structure, and high quality—pipe made to a recognized standard.

Bethlehem maintains at Los Angeles, Cal., and at Houston, Tex., well-assorted stocks of line pipe, ready for immediate shipment. Both threaded and coupled and plain-end pipe are included in these stocks.

BETHLEHEM STEEL COMPANY, General Offices: BETHLEHEM, PA.

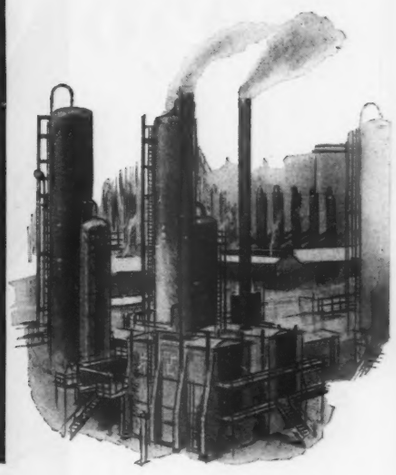
DISTRICT OFFICES:

New York Boston Philadelphia Baltimore Washington Atlanta Pittsburgh Buffalo Cleveland Detroit Cincinnati Chicago St. Louis San Francisco Los Angeles Seattle Portland Honolulu

Bethlehem Steel Export Corporation, 25 Broadway, New York City, Sole Exporter of Our Commercial Products

BETHLEHEM
STEEL PIPE

Brown Instruments at Coraopolis, Pa., Plant of Waverly Oil Refining Company.



An old timer in the industry

—but "up to the minute" in operating methods

ONE of the oldest and best known petroleum refiners in the country is the Waverly Oil Works Company, famous for its "Waverly Handbook," for many years valued as a reference book for practical refiners and oil men. Scientific methods of controlling refining results were early adopted by this pioneer company. For years Brown Automatic Temperature Control and Brown Recording Pyrometers have promoted quality and economy in the operation of a Cross 1,000-barrel cracking unit at its Pittsburgh plant; Brown Recording Thermometers and a Brown Electric Flow Meter also being used in connection with several "barrel" stills. The instrument board shown above is located at the company's new Coraopolis, Pa., plant, and is used for controlling a large Cross cracking still. Instrument equipment includes Brown Recording Pyrometers, Brown Recording Electric Flow Meters, Brown Automatic Temperature Controls, Brown Indicating Pyrometers, etc.

Refiners of the longest experience are among the strongest endorsers of the reliability of Brown Instruments for refining service. Write for quotation—consultation—or catalogs.

THE BROWN INSTRUMENT COMPANY
4488 Wayne Avenue, Philadelphia, Pa.

Branches in 20 principal cities.

Brown Instruments

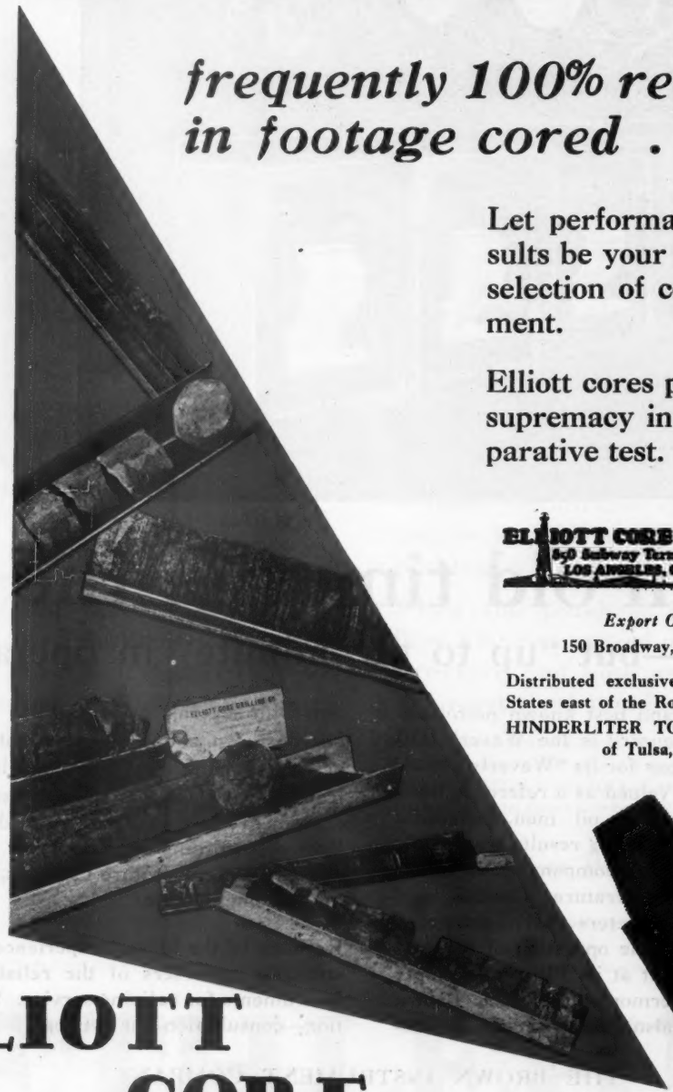
"To measure is to economize"

BETTER CORES

frequently 100% recovery in footage cored . . . . .

Let performance and results be your guide in the selection of coring equipment.

Elliott cores prove Elliott supremacy in every comparative test.



ELLIOTT CORE DRILLING CO.
540 Subway Terminal Building
LOS ANGELES, CALIFORNIA

Export Office:
150 Broadway, New York

Distributed exclusively in the United States east of the Rocky Mountains by HINDERLITER TOOL COMPANY of Tulsa, Okla.

The Elliott Cable Tool Core Drill

ELLIOTT CORE DRILLS

Mechanically coating and wrapping pipe

A revolutionary process developed by the manufacturers *of* Biturine

For twenty-three years Hill, Hubbell & Company have been outstanding among manufacturers of protective pipe coatings. Their laboratories and field staff have been constantly active in developing and adopting improvements, both in materials and in equipment for application.

The old methods of protecting pipe however have been superseded by the most radical development yet made in the line pipe industry—machine coating and wrapping *at the mill.*

Machine coated and machine wrapped pipe is no longer in the experimental stage. Its economy and practicability are recognized by far-sighted pipe line owners. During the past few months over three thousand miles of pipe have been lowered into the ditch with the assurance that the investment is protected to the fullest degree.

Compare these advantages of machine coated and wrapped pipe with the processes of applying protective coatings used in the past:

1. The pipe is thoroughly cleaned of all rust and mill scale.
2. It is not only thoroughly dry but warm when the primer is applied.
3. The required thickness of the protective coating of Bitumen is applied *before* the felt is applied.

BITURINE COATINGS

Biturine Enamel *Biturine Solution No. 5*
Biturine Enamel Primer *Biturine 70-30*
Biturine Coupling Mixture

This group of protective coatings represents the fruits of more than 20 years of careful research and practical experience. Biturine Enamel and Primer are particularly adapted to the Hill, Hubbell & Company process of mechanically applying protective coating to the pipe at the mill.

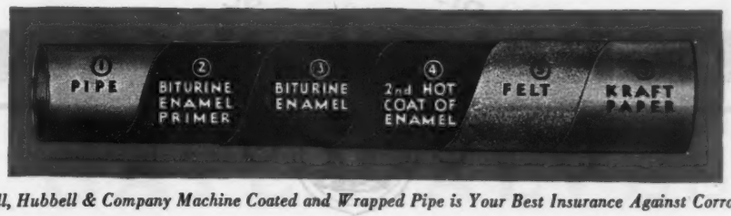
4. This thick coating is applied in two coats, insuring freedom from pin holes and bubbles.
5. The coating of felt is applied under tension and is exactly spaced and, therefore, perfect.
6. The whole process is mechanical, involving no human element, and no waste.
7. The entire operation goes on under roof and can proceed night and day regardless of weather.
8. Exact temperature control of the Bitumen is possible. This is important and cannot be had in field operations.

The production of the pipe mills listed below can be coated and wrapped at the plants of Hill, Hubbell & Company in the cities named.

CENTRAL TUBE COMPANY, Ambridge, Pa.; SPANG-CHALFANT & COMPANY, Ambridge, Pa.; YOUNGSTOWN SHEET & TUBE COMPANY, Indiana Harbor, Ind.; NATIONAL TUBE COMPANY, Lorain, Ohio; A. O. SMITH CORPORATION, Milwaukee, Wisc.; YOUNGSTOWN SHEET & TUBE COMPANY, Youngstown, Ohio.

Our nearest office will be glad to send you literature describing the process and giving details about specifications.

GENERAL PAINT CORPORATION
HILL, HUBBELL & COMPANY DIVISION
CHICAGO NEW YORK TULSA HOUSTON DALLAS SAN FRANCISCO OAKLAND
LOS ANGELES PORTLAND SEATTLE SPOKANE



Hill, Hubbell & Company Machine Coated and Wrapped Pipe is Your Best Insurance Against Corrosion

THE DRILLMASTER

In addition to a new and advanced combustion system, known as Climax Blue Streak Combustion, this modern Drillmaster engine gives you 150 H. P.—valve-in-head design—large water passages—large fan and radiator—diaphragm fuel pump—new gas or gasoline mixing valve—fully enclosed rocker arms, pressure lubricated—extra heavy skid frame—self-aligning, anti-friction out-board bearings—electric starter and generator—150 Amp. Hr. 21 plate storage battery—18-inch single plate clutch—air cleaner and carburetor—and other features that make it the most modern drilling unit on the market today.

ADVANCED internal combustion engineering is the answer to the unusual performance of the new Climax Drillmaster drilling engine. This 6-cylinder, valve-in-head engine boasts an entirely new combustion system design. This new system is a combination of proper valving, cooling, manifolding, carburetion and combustion chamber. It gives you 10% to 12% more power than you can get from an L-head engine of similar displacement. And with this increase in power comes an exceptional flexibility and response to control for deep well drilling.

CLIMAX Trade Mark Reg. U. S. Pat. Off.

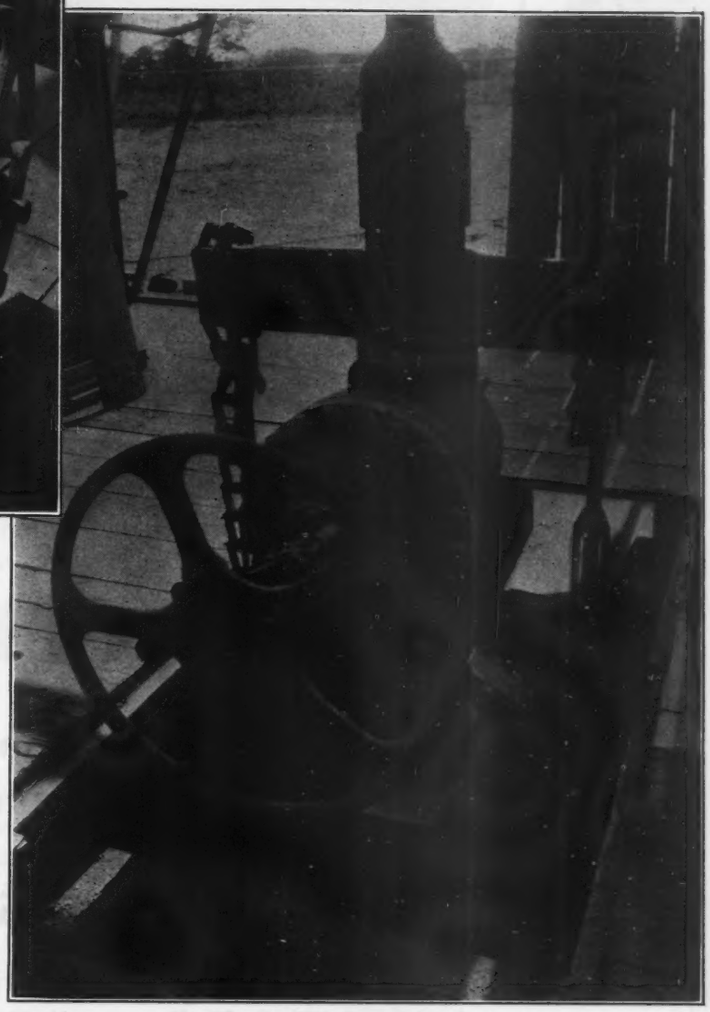
CLIMAX ENGINEERING COMPANY
76 WEST 18th AVENUE CLINTON, IOWA

DISTRIBUTED BY

THE NATIONAL SUPPLY COMPANIES

NSCO

At Work in the Oklahoma City Field



DARLING
FORGED STEEL VALVES
are a Factor of Safety

Steel — forged under enormous pressure — the only method of steel treatment that can assure the operator that no hidden flaws exist and that the rated test pressure is without qualifications as to what may lie hidden within the steel body.

The Darling Forged Steel Valves shown are operating in the Oklahoma City Fields. They were tested for 5,000 lbs.—a factor of safety against the unforseen—and are Dar-a-loy trimmed. Protect yourself—your men—against the possibility of trouble; for what does the slightly higher initial cost amount to in comparison with the risks you may take? Besides Darling Valve construction spells Longer Life, Fewer Repairs, Ease of Operation, and Minimum Leakage.

The valves at the left are operating on a well which has a 28,000,000 cubic foot volume, and 1540 lbs. rock pressure. The valves at the right are operating on a well with 70,000,000 cubic foot volume and a 1750 lb. rock pressure.

Write for Darling's No. 16 catalog on Forged Steel Gate Valves. It explains the valve completely and makes ordering easy and quick.

Darling Valve & Manufacturing Company

Williamsport, Pa.

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Atlas Supply Co.
Petroleum Supply Co.

California Distributor:
Petroleum Equipment Company, Los Angeles

Foreign Sales Manager
H. M. Hein, Room 1405, 152 West 42nd St., New York, N. Y.

DARLING
GATE VALVES

PAGE & HILL CO.
Guarantee of Penetration
THE UNDERSIGNED GUARANTEES that every P. & H. Process Pole, shipped on our
Order No. ..... Car No. ..... Initials .....
has been impregnated with the preservative to a depth of one-half inch in every portion of the pole
in that area between the plane designated as the height of treatment to a plane three feet below
the height of treatment, unless the sapwood is less than one-half inch in thickness, in which case
the impregnation is to the full depth of the sapwood.
It is further guaranteed that the Butt-Treating price will be refunded on any pole which when
tested in accordance with the specifications for Butt-Treating Cedar Poles, P & H Process, does not
show the penetration as herein specified.
This guarantee is effective provided only the attached coupon is signed and returned to Page &
Hill Co., at Minneapolis, Minn., within five days from the date shipment arrives at destination and
that any claim for refund under this guarantee is filed with Page & Hill Co., at Minneapolis, Minn.,
within thirty days thereafter.
PAGE & HILL CO.
By .....
No. _____

GUARANTEED POLES

"P & H Process" Cedar Poles are guaranteed *in writing* to show a full sapwood penetration of the preservative to a depth of one-half inch throughout the groundline area.

This guarantee is given . . . without reservation . . . with every carload of "P & H Process" Poles. Engineers and pole buyers agree that this penetration is their assurance of longest pole life.

Fast Shipping Service

Complete stocks on hand at all times.

We can supply all your pole requirements—promptly!

"Still in the Lead"

PAGE AND HILL CO.

MINNEAPOLIS, MINN.

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Dayton, Ohio, 854 Reibold Bldg.
New York, N. Y., 50 Church St.
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Franklin Valveless Oil and Gas Engines

Some of the Franklin OF Good Points

- Enclosed type
- Low fuel consumption
- 100% interchangeability
- Simplicity
- Piston rod is fitted with metallic packing which never needs adjusting or replacing
- Every spring exposed
- Complete simplicity with practically no adjustment
- In case of belt breakage engine automatically stops
- Fuel pump driven by eccentric running in oil bath
- Bearings are removable and reversible
- Only standard threads used. No special wrenches required
- Cylinder has 3 point force feed lubrication
- Balance of lubrication is splash feed
- Pistons are air cooled
- All nuts subject to vibration are castillated and fastened with cotter pins
- Most economical to operate in fuel, lubricant, water and repairs
- Easy to start

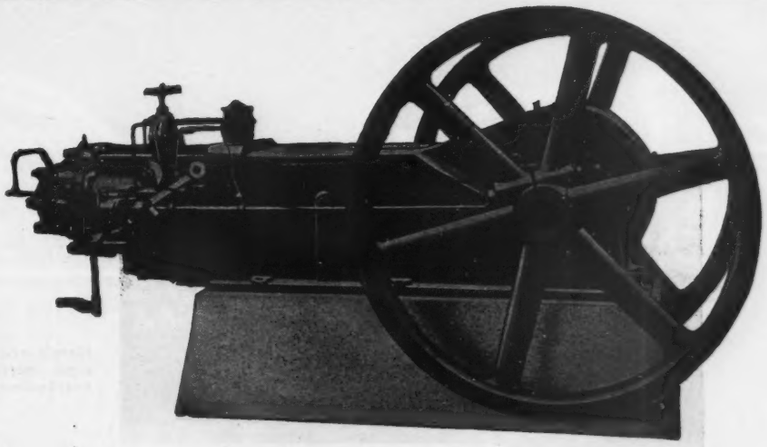
Type BG Clutch for Cable Tool Drilling or Pumping

A vast improvement over the former type of clutches.

Driven from pulley on engine. Permits the use of a larger diameter pulley and makes possible a slower clutch speed. Operates by hand lever on derrick.

Construction and design prevent Reverse Clutch Troubles.

PRICE—$1200.00 F.O.B. Franklin, Penna.



New FRANKLIN OF Driller
The Engine With the Pedigree

Back of the new Type OF Franklin Valveless Engine are years of development work—and engines which in their time stood unsurpassed.

But—new times—new conditions. So here is the Type OF—an engine in its proper size, capable of going as deep into the ground as you need to go—at a smooth, swift pace and economically.

Whether your wells are located in proven fields or in isolated sections, you cannot beat the Franklin records of low operating costs — in fuel, lubricating oil or water. Both drilling and pumping sizes mount on the same block with corresponding bolt holes. Portable, light, powerful and easily serviced. What more could you ask?

Send for literature.

Franklin Valveless Engine Company
Franklin, Penna.

PRICES

40 H.P. Type OF Franklin, including water circulating pump and pulley. *$1550 F.O.B. Franklin*

50 H.P. Type OF Franklin, including water circulating pump and pulley. *$2050 F.O.B. Franklin*

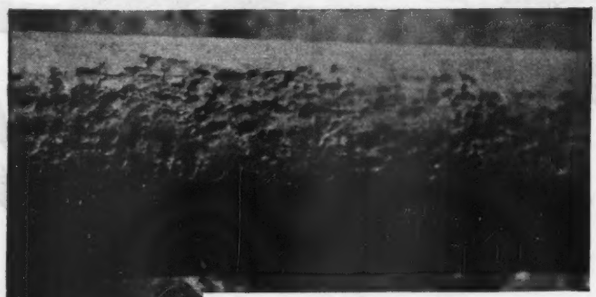
80 H.P. Type OF Franklin, including water circulating pump, pulley and air starting equipment. *$3200 F.O.B. Franklin*

NOTE—Type OF is readily converted into type OG for gas fuelization.

Distributed by

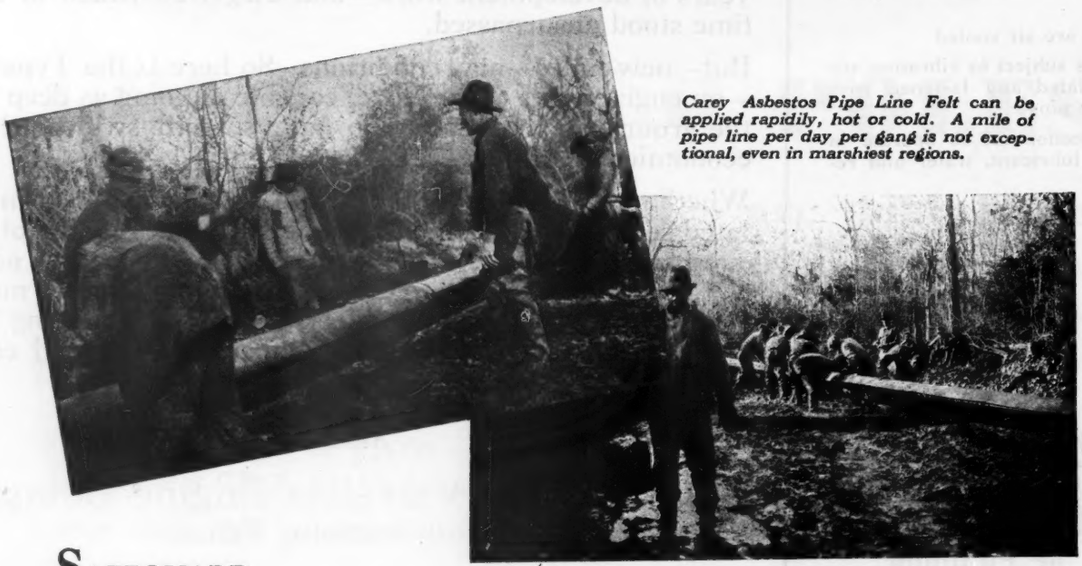
OIL WELL SUPPLY COMPANY

Branches in All Oil Fields



Here's what happens to the unprotected pipe—notice how corrosion has pock-marked and pitted the bare metal.

CORROSION
is helpless against
ASBESTOS ARMOR!



Carey Asbestos Pipe Line Felt can be applied rapidily, hot or cold. A mile of pipe line per day per gang is not exceptional, even in marshiest regions.

SAFEGUARD your pipe lines against the ravages of rust. Wrap them in Carey Asbestos Pipe Line Felt, the inexpensive protection against corrosive ditch conditions. Easy to handle, easy to apply. And more of an economy now than ever before. Write for particulars.

Special Industries Department
THE PHILIP CAREY COMPANY, *Lockland*, Cincinnati, Ohio
R. B. HALL, Special Mid-Continent Representative

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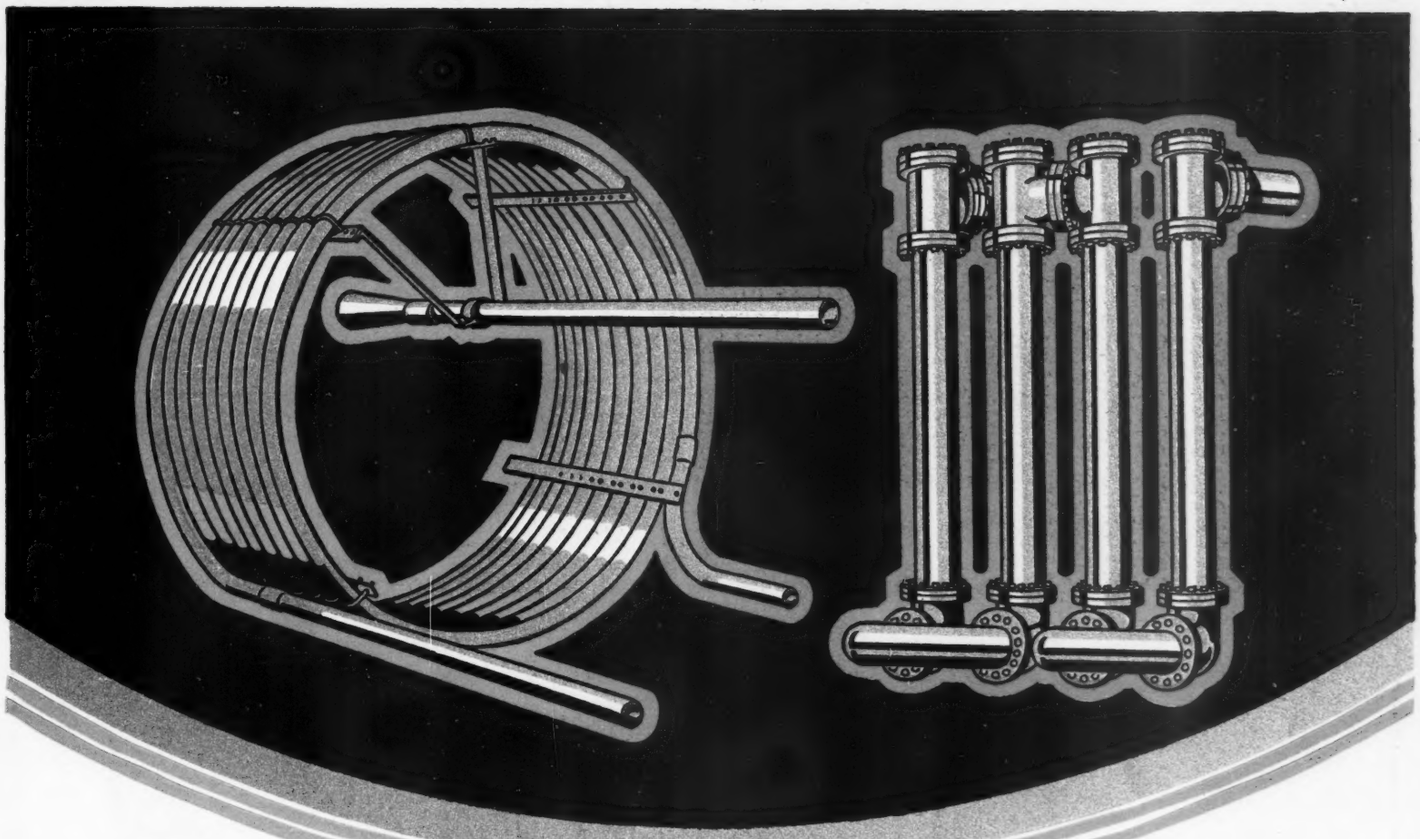
Carey
ASBESTOS PIPE LINE FELT



ENDURO NIROSTA KA2 *Controls High Temperatures - High Pressures - Excessive Corrosion*

DUE TO THE KRUPP patented method of processing, Enduro KA2 meets all requirements for installations subject to excessive corrosion, or where high temperatures are combined with corrosive attack. ¶ The distinctive characteristics of this improved chrome-nickel-iron alloy gives piping, tubes, wire, tanks, digesters, kettles, storage vessels, condensers, and countless other apparatus fabricated from this material, a life many times that of ordinary steel or other alloys. ¶ The high immunity of Enduro KA2 to corrosive attack—its unusual strength at high temperatures—freedom from embrittlement—and high resistance to oxidation, are effecting substantial economies in industry. ¶ To overcome costly losses now occurring where other metals are used, alert designers now specify Enduro KA2. It is available in all usual shapes and forms.

ENDURO

NIROSTA

CENTRAL ALLOY STEEL CORP.
Massillon and Canton, Ohio

K·A·2 STEEL

THE BABCOCK & WILCOX TUBE CO.
85 Liberty Street, New York City, N. Y.

LUDLUM STEEL CO.
Watervliet, N.Y.

COMBINING high corrosion resistance with ready workability, Enduro KA2 is simplifying many problems of design and facilitating construction in industries where corrosive agents must be handled. ¶ Seamless tubes and pipe of this new chrome-nickel-iron alloy can be bent, threaded, flanged or otherwise formed with the same ease as ordinary steel. ¶ And the great strength and toughness of Enduro KA2 is likewise in marked contrast to the fragility of special non-corrosive materials such as glass, stoneware, and high silicon cast iron. ¶ For oil, acid and pressure lines, for heat exchanger tubing, condensers, and innumerable other apparatus subject to severe corrosion or high temperatures, Seamless Enduro KA2 is providing long economical service.

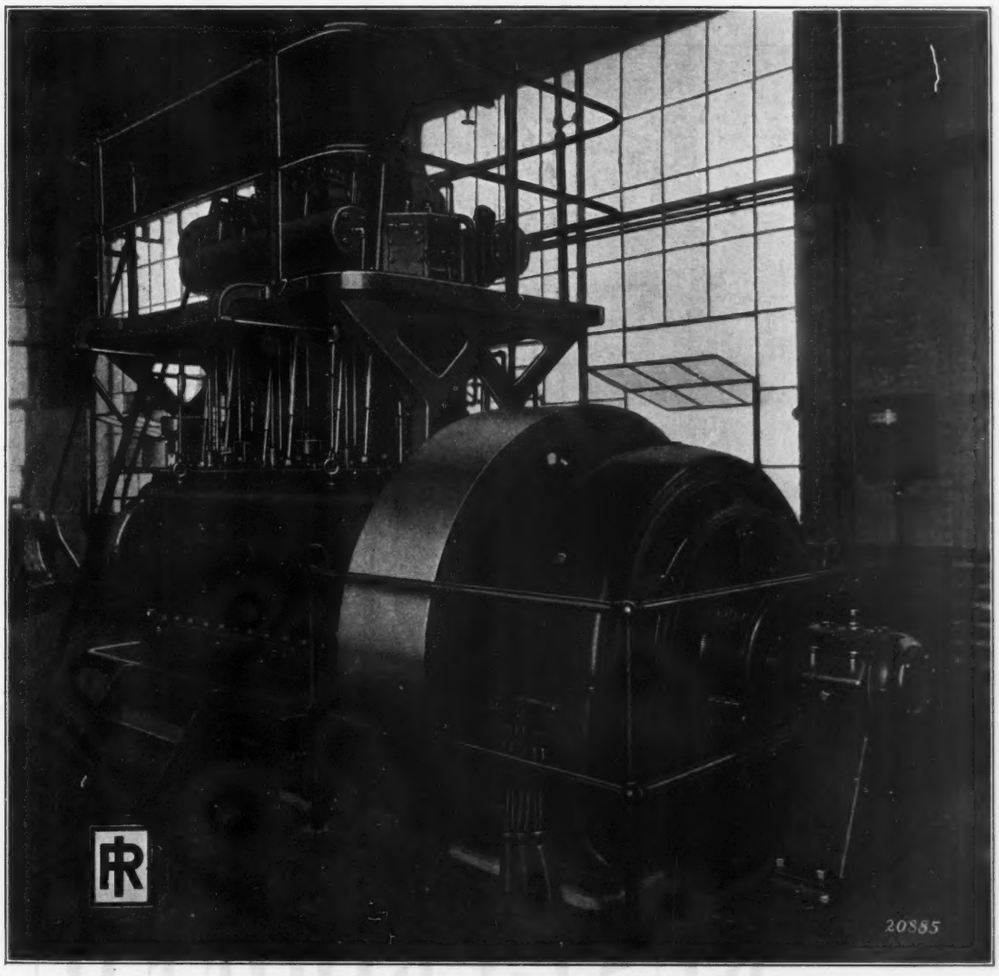
The booklet tells the history of Enduro—fully explains its many advantages and points out scores of its manifold uses. Write to any of the companies listed below for your copy.

ENDURO NIROSTA KA2 STEEL

CENTRAL ALLOY STEEL CORP.
Massillon and Canton, Ohio

LUDLUM STEEL CO.
Watervliet, N. Y.

THE BABCOCK & WILCOX TUBE CO.
85 Liberty St., New York City, N. Y.



Oil Engines for Every Service

Wherever fuel gas is scarce, or should be conserved, you will find the oil engine a dependable, economical power source.

Ingersoll-Rand 4-cycle, solid-injection Diesel engines will give you reliable service at a surprisingly low operating cost.

Vertical Type "PR" units suitable for driving generators are built in sizes up to 1200 hp. Horizontal Type "PO" units, in sizes of 55, 110, and 150 hp., can be used to advantage in field, refinery or pipe line service. They are also furnished direct-connected to Ingersoll-Rand high-efficiency compressing cylinders.

It will pay you to ask our nearest branch office for full particulars on these machines.

INGERSOLL-RAND COMPANY - 11 BROADWAY - NEW YORK CITY

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151-SOE

Ingersoll-Rand

RUST-PROOFED!

when the paint is pure Red-Lead

LITHARGE of correct physical character and extreme chemical purity is a necessity in oil-refining. Such litharge is made by us. You can always rely on its unvarying uniformity. Our nearest warehouse can give you quick shipment.

"Save the surface and you save all"—Dutch Boy

WHERE steel-work must serve unweakened for many years . . . on bridges, ships, tanks, steel structures of every type . . . there you find paint made of pure red-lead used.

Tested by more than a century of universal use, pure red-lead paint has proved its high protective value . . . its remarkable ability to prevent rust . . . its extreme durability even under severe conditions. It is recognized by paint authorities everywhere as the standard protective paint for metal.

Fine, uniform, highly oxidized . . . there is no better red-lead obtainable than Dutch Boy red-lead. It comes in two forms . . . paste and liquid. The liquid (ready for the brush) is supplied in six colors—natural orange-red, light and dark brown, light and dark green, and black. The paste comes in natural orange-red and can be shaded to dark colors.

NATIONAL LEAD COMPANY

New York, 111 Broadway / Buffalo, 116 Oak Street Chicago, 900 West 18th Street / Cincinnati, 659 Freeman Avenue / Cleveland, 820 West Superior Avenue / St. Louis, 722 Chestnut Street / San Francisco, 235 Montgomery Street / Boston, National-Boston Lead Co., 800 Albany Street / Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue / Philadelphia, John T. Lewis & Bros. Co., Widener Bldg.

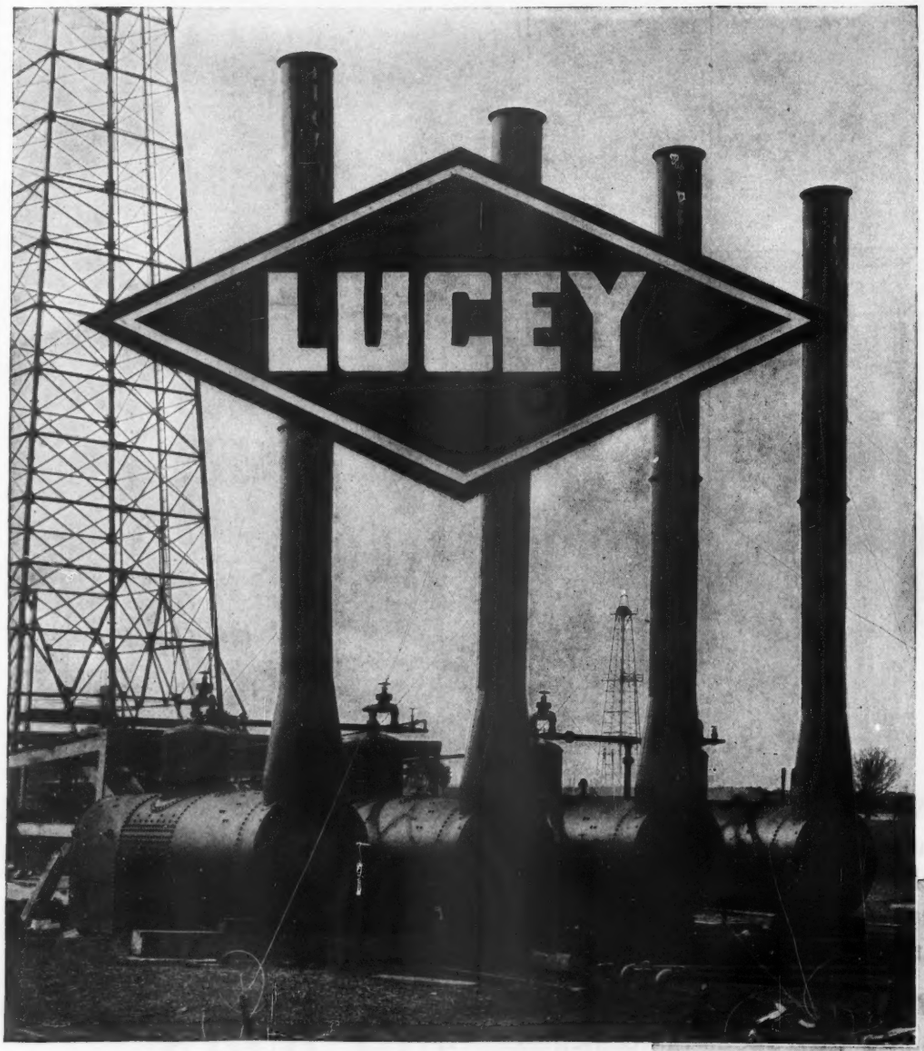
DUTCH BOY RED-LEAD

An experienced lover *could* buy his lady friend cheaper flowers than orchids, but he knows that no others are so sure to please, and so certain to be free from regrets.

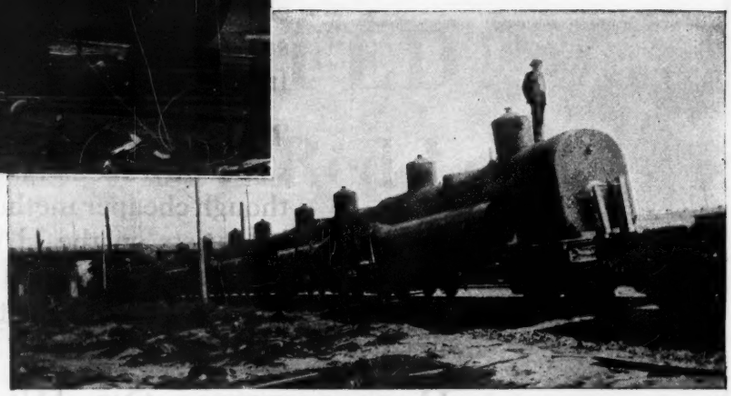
The experienced oil man feels the same way about his cementing. Although cheaper methods are available he insists on the HALLIBURTON for the same reason that he insists on a reliable and time-tested insurance company.

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

STEADY STEAM PRESSURE



Cut drilling costs by increasing drilling speed with Lucey Boilers... the standard of the oil fields. They provide fast steaming, trouble-free performance and maintain a steady, high steam pressure with low fuel consumption. Sturdy, dependable, safe!



In the Mid-Continent, where the above photo was taken, you'll see Lucey Boilers everywhere.

In California they buy 'em by the trainload!

All materials used in the manufacture of Lucey Boilers equal or surpass the requirements approved by the A.P.I., the American Society for Testing Materials and the A.S.M.E. Every part is rigidly inspected by a licensed boiler inspector. Complete Specifications on Request.

LUCEY PRODUCTS CORPORATION

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TULSA, ... 224 E. Brady St. LONDON, . . 54 Old Broad St., E. C. 2
LOS ANGELES, . . 5043 Santa Fe Ave. PARIS, ... (1er) 55 Rue de Rivoli
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PLOESTI, ROUMANIA

LUCEY BOILERS

MADE TO A. P. I. SPECIFICATIONS

PARKERSBURG

Has served the oil fields of the world for 32 years

Steel Stairways and Runways

Much is being said today about "Safety First" and reduction of Insurance by elimination of fire hazards.

Parkersburg Steel Stairways and Runways are safe, the fire hazard is removed with the added features of being portable, easy to erect and strong.

These stairways are sectional. One section for 8 foot, two for 16 foot and three for 24 foot tanks

They are supplied with gates and guards when specified and are shipped with the parts neatly and conveniently nested.

Write today for Bulletin "S", it gives detailed information on Parkersburg Steel Stairways and Runways.

THE PARKERSBURG RIG & REEL COMPANY

EXECUTIVE OFFICES & MAIN PLANT

PARKERSBURG, WEST, VA.

PARKERSBURG PRODUCTS

Steel Derricks and Steel Crown Blocks	■	Rig Irons (A.P.I. Standard)	■
Chain Driven Sand Reels and Bailing Reels	■	Portable Drilling Machines (Wood and All-Steel)	■
Steel Wheels	■	Bolted Steel Tanks	■
All-Steel Standard Rigs	■	Miscellaneous Drilling Equipment	■

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On the strength of this photograph alone

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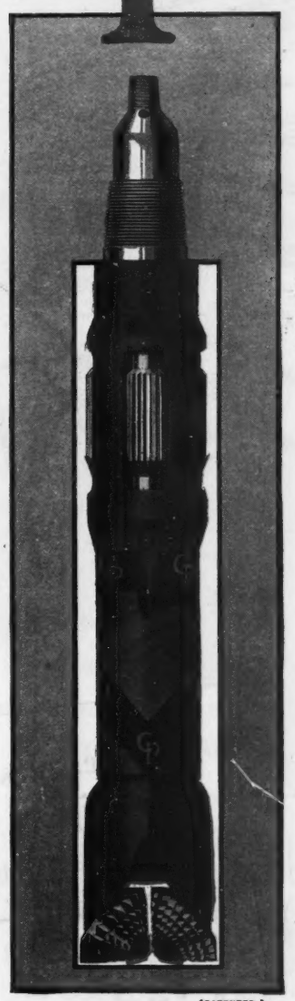

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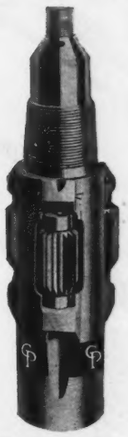

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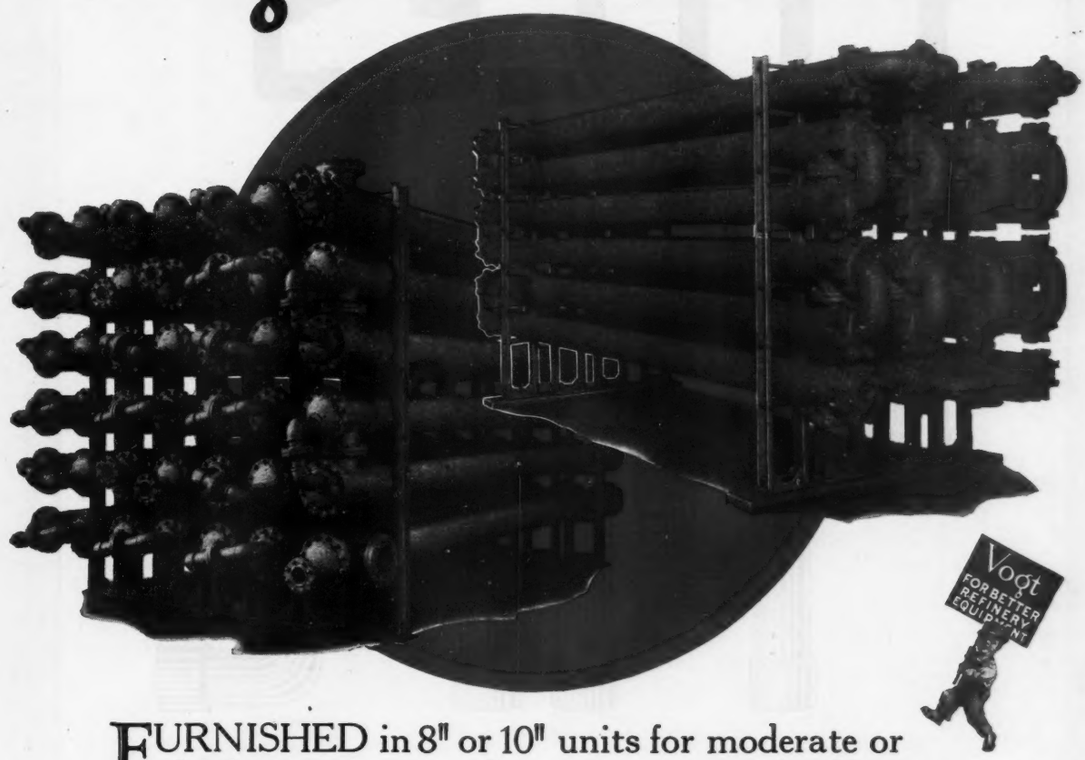

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The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

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Outlook Bright, Due to Conservation

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Success in California and Elsewhere Creates Optimism. Continuance of Movements Will Insure Prosperity

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

With the conservation movement in California a practical success and operators in all other flush production areas of the United States seemingly in accord in the movement to hold crude oil production more nearly to market requirements, there is more optimism apparent in the industry now than there has been at this season of the year for several years at least. It is becoming more thoroughly realized all the time—both by large and small operators—that the natural reservoirs of the earth are the logical places to keep crude oil not needed by market requirements. Excess production not only places a heavy and costly burden on every branch of the petroleum industry and the public as well, but it depresses the general price structure to a point where a large majority of the operators actually lose money in bringing the oil to the surface.

An extension of the conservation movement is seen in the rapidly growing interest being shown in the matter of unit operation. This plan, it is claimed, will operate just as satisfactorily during times when there is a real need for more production as during times of overproduction. Operators will effect a great saving through a reduction in the number of dry holes drilled and it seems entirely probable a greater yield of crude will be procured through conservative development with care taken to maintain the pressure in the sands.

Refiners of the United States hold a most important position in the present conservation movement. Consumption can be estimated quite accurately and if runs to stills are held within reasonable limits of what the refiners feel will be the demand for gasoline and other products, a great step will have been taken to eliminate the fluctuations in prices which usually disturb the industry.

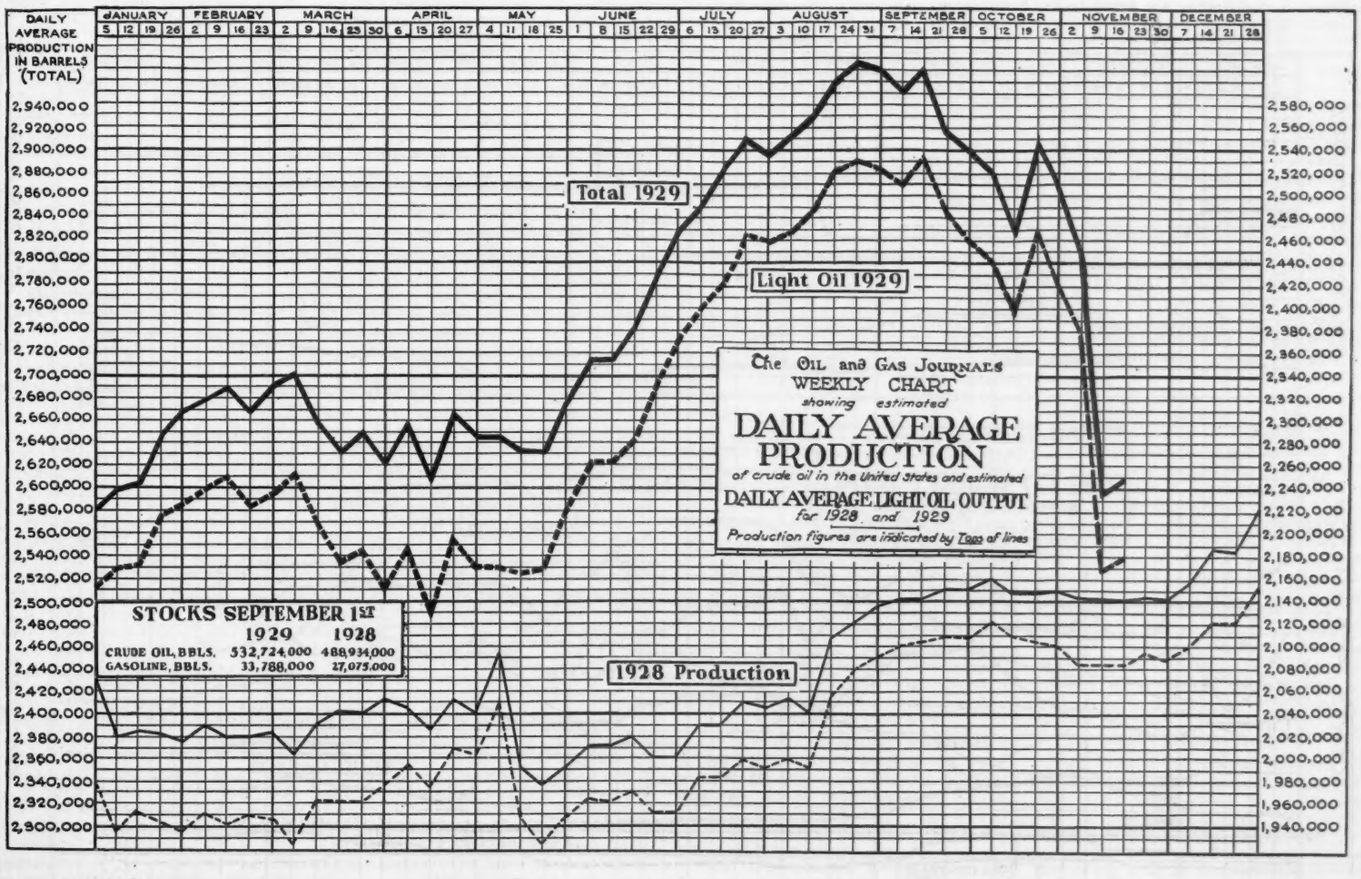
It is of the greatest importance to the entire industry that there be no let-up in present conservation efforts and that the improved outlook be not used as an excuse for easing up in the curtailment programs.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended November 16, and a comparison with the previous week follows:

	Nov. 16		Nov. 9	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	57,655	.....	37,385	.....
St. Louis-Pearson	50,585	.....	51,090	.....
Seminole	238,310	.....	232,915	.....
Northern Miscellaneous	241,270	.....	238,510	.....
Southern Fields	57,675	.....	57,080	.....
Total Oklahoma	645,495	.....	616,980	.....
West Texas—				
Hendricks	108,745	.....	109,715	.....
Yates	143,505	.....	137,835	.....
Remainder	115,830	.....	114,241	.....
Total West Texas	368,080	.....	361,791	.....
North Louisiana	30,985	5,575	30,837	5,854
Arkansas	17,880	45,345	18,066	45,100
North Central Texas	146,095	.....	149,659	.....
Texas Panhandle	100,015	.....	101,187	.....
East Central Texas	17,859	.....	18,114	.....
Kansas	109,410	.....	109,915	.....
Total Mid-Continent Area	1,435,819	50,920	1,406,549	50,954
Gulf Coast	.....	190,456	.....	186,975
Southwest Texas	.....	61,505	.....	62,175
Eastern	135,000	.....	135,000	.....
Rocky Mountain Area	72,257	.....	70,695	.....
California—				
Santa Fe Springs	150,000	.....	160,000	.....
Long Beach	112,000	.....	125,000	.....
Huntington Beach	41,000	.....	41,500	.....
Elwood	27,500	.....	27,500	.....
Ventura Avenue	51,000	.....	55,000	.....
Seal Beach	22,000	.....	23,000	.....
Remainder of State	134,000	132,000	129,000	135,000
Total California	537,500	132,000	561,000	135,000
Total United States	2,180,576	434,881	2,173,244	435,104
Grand Total		2,615,457		2,608,348

Total Increase, 7,109 Bbls.; Light Oil Increase, 7,332 Bbls.



Minor Changes in Oklahoma Market

Depletion of Storage and Reduced Production Due to Curtailment in Fields Aids Natural Gasoline Situation

By C. O. Willson

The Oklahoma (Group 3) refined market over the past week did not develop any important price changes.

The products which have been classed as weak since the first of the month were steady in price. Furnace oil distillates after a sluggish period of four weeks were again in better demand. Several refiners in Oklahoma and Kansas reported a greater movement on contracts and also a more active spot demand. This is apparently due to colder weather in the northern states and a realization on the part of the jobbers that prices would not go lower. Gas oil prices were unchanged with a fair demand for all grades.

Despite the efforts of several large buyers to secure price concessions the fuel oil market in Oklahoma continues firm. The most important factors in the spot market are storing when necessary and very little material is available from other refiners who state that their output is taken care of for the remainder of the year. Despite the bearish statements heard regarding a slow-up in the demand due to the curtailment of industrial activities, buyers were actively soliciting purchases throughout the week.

The refinery gasoline situation has not changed. The spot demand for the U. S. Motor grade is not active and the most buyers are making purchases at 7 cents or less. Those quoting higher prices are getting little spot business but so far they do not appear to be burdened with excess material due to the steady contract business. The high gravity grades of refinery gasoline are generally steady although an occasional sale at lower prices is reported. The domestic demand for these grades has shown a seasonal improvement and deliveries are being made on export orders placed last month.

REFINED MARKET BAROMETER

Despite the fear that a general reduction in gasoline tank wagon and service station prices will materialize as the result of declines at scattered points, the refinery tank car market was steady over the past week. It is felt that present prices probably already have discounted any unfavorable developments in the retail markets, supported as it is by an improved crude oil situation. In California and the Mid-Continent, the crude oil curtailment programs have reduced the production of natural gasoline and this development is expected to strengthen that market. In the export market three orders for cargo lots of high gravity gasoline are reported to have been placed. Residuum oils and other oils used as fuels are generally firm, the outlook for these products having been improved by the large reduction in crude oil production. Kerosene is generally weak both for domestic and export movement in the Mid-Continent and Gulf Coast areas. No important changes developed in the lubricating and wax list. The demand for the latter product is not active.

Mid-Continent—Spot demand for refinery gasolines slow with no important price changes. Kerosene generally weak and prices lower. Distillate and gas oil prices unchanged. Fuel oil strong and prices firm. Natural gasoline in demand with higher prices effective on better grades. No changes in lubricants and wax.

East Coast—Better tone in market due to improved crude oil situation. Reduction in gasoline tank wagon prices causes some uneasiness relative to tank car market where prices continue firm. No change in kerosene. Lub prices firm. Paraffin wax market unsettled. Fuel oil in good demand at firm prices.

Chicago—Fair spot demand for gasoline but bulk of business confined to contract orders. Little demand for kerosene and prices lower. Gas oil firm. Distillates easy. No change in fuel oil, most of grades of which are in strong demand.

Pennsylvania—Prices reduced on several grades of kerosene and gasoline. Other products unchanged.

Gulf Coast—Fuel oil for cargo movement weaker. Lub oil steady. Gasoline not active.

California—Better tone in both refinery gasoline and natural gasoline market. Fuel oil prices steady.

Kerosene continues weak and the price level is at least one-eighth cent under that effective last week. The change in plant operations to secure the high gravity grades of gasoline for export movement has increased the output of kerosene at several refineries and there has been no improvement in the demand. A little export buying developed last week in North Texas where the market has been especially weak. It is said that the export market will not offer an outlet for large quantities at this time.

Natural Gasoline

Natural gasolines continue stronger than the regular grades of refinery gasolines. With the arrival of colder weather there is more discrimination among buyers in regard to their purchases and the usual winter price differentials between grades are becoming apparent. With the colder weather the usual trend in plant operation is to increase the output of Grades B, BB and C with a corresponding decline in Grades A and AA.

This situation was reflected during the past week with price advances in the A and AA grades with the remaining grades more freely available at last week's prices. Several sellers were observing a price differential between the A and AA grades. The former was strong at 6¾ to 6⅞ cents with 6¾ cents flat the accepted price for Grade AA. The Grades B and BB were available at 6¼ to 6⅜ cents and the sales of Grade C were reported as low at 6⅛ cents.

Those who are attempting to forecast the gasoline market over the next few months agree that the outlook for the natural gasoline manufacturer is better than that of the refinery operator. A conservative policy in regard to prices has been maintained by the larger manufacturers over the past few months and as a result they now enjoy a strong storage situation despite a large increase in production in the Mid-Continent fields.

Prices have been maintained under the prevailing refinery quotation for U. S. Motor gasoline and buying has come from refiners and jobbers in all parts of the country. When the market weakened last summer one of the major manufacturers with the bulk of the storage in the Mid-Continent Field ran large quantities to storage thus preventing a price demoralization. The buying of the past few weeks, it is said, has practically emptied this storage. The same situation applies to the other large manufacturers.

With this empty storage the gasoline

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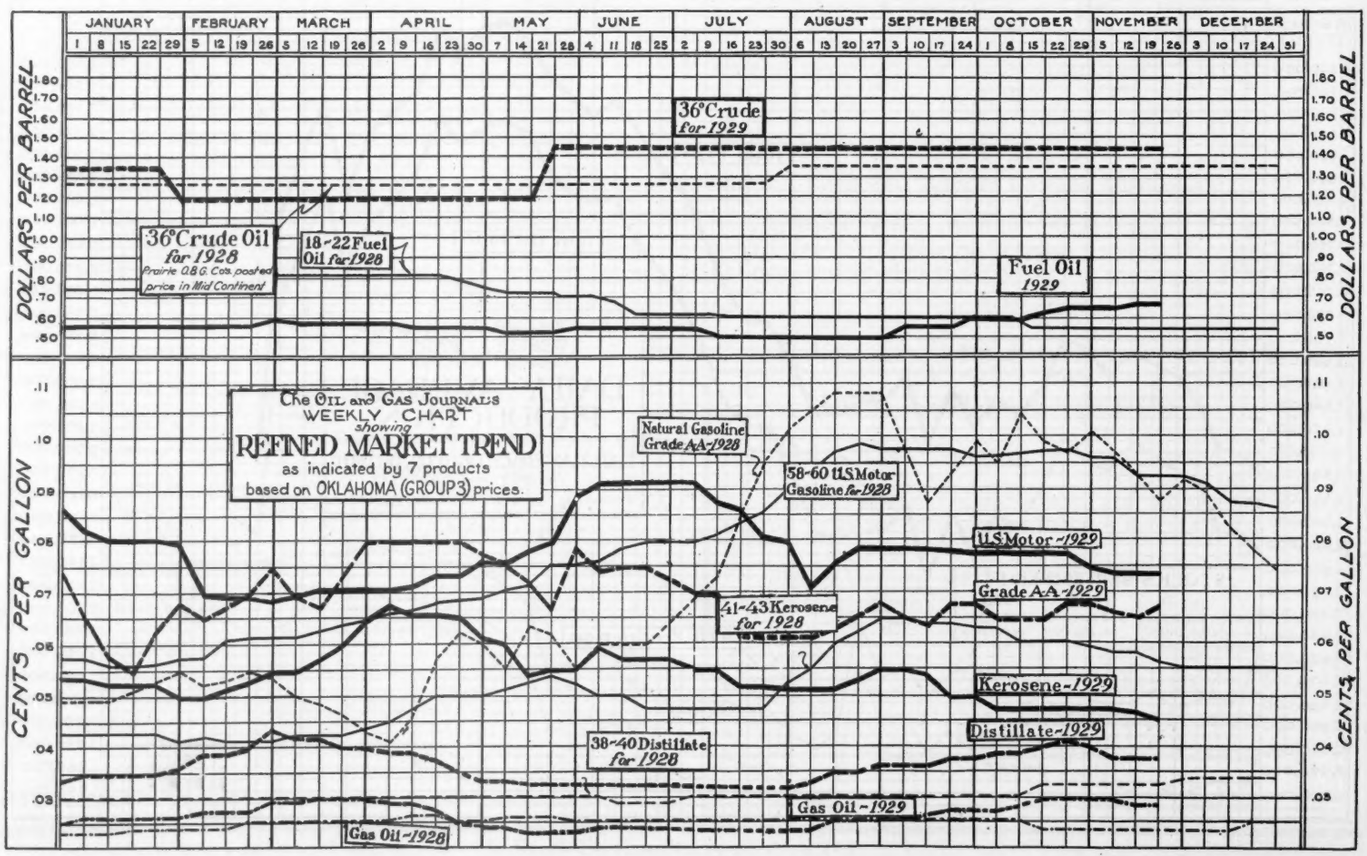

Group Development on Wyoming Domes

Outcome of Secretary Wilbur's Order on Permits and Subsequent Adjustment of Claims. Conservation Move

By Tolbert R. Ingram

DENVER, Colo., Nov. 18.—The extent to which the Department of Interior at Washington has gone in its efforts to harmonize the misunderstandings arising out of Secretary Wilbur's order of March 12, 1929, cancelling all applications for extensions on prospecting permits, bringing about co-operation in the development of prospective oil structures and achieving its desire for the conservation of oil, is revealed in some recent developments. Secretary Wilbur has approved the recommendations of the special departmental committee appointed last March to consider pending applications covering permits on the Midway, Geary and North Geary Domes in Natrona County, Wyoming. The applications have been reinstated, extensions have been granted, a co-operative group development program has been approved and if oil is encountered the structures will be produced under a unified plan that conforms to the Government's conservation policy and will result in a systematic, orderly and economical development of the areas.

The successful conclusion of the negotiations and the signing of contracts will again bring into prominence an area that oil men have looked upon with favor for many years, but which has been held back from a thorough exploration on account of numerous difficulties that hindered former efforts.

The Midway Dome lies about 30 miles to the south of the center of the Salt Creek Field and 15 miles north of Casper in Township 35n, Ranges 78 and 79w. The Geary Dome is located to the southeast of the Midway Dome and 4½ miles to the northwest of the Big Muddy Field east of Casper. The North Geary Dome lies between the Geary and Midway structures. All of these domes are on an anticlinal fold running through Salt Creek and Teapot in a southerly direction to the Midway Dome and then trends in a southeasterly direction through North Geary, Geary and the Big Muddy Domes. The Geary Dome is in Township 34n-77w, and the North Geary Dome is in Township 34n-78w.

Approximately 22,000 Acres

There are approximately 22,000 acres within the closing contours on the three structures, most of which is government land, though there is some state land and some patented land. The structures were originally worked out and located by H. Leslie Parker, who was active in the development of the Big Muddy and other Wyoming Fields, and Marion N. Wheeler, formerly of Casper, but who now resides in Los Angeles. After personally working out the geology as far as it could be determined by the surface evidences, they located the ground as placer mining claims under the placer mining laws as amended by the Act of February 11, 1897. Other claims were located at about the same time, but the conflicting interests were consolidated and differences adjudicated and in 1916 and 1917 all claimants leased their holdings to Mr. Parker and Mr. Wheeler, who entered into a contract with the Producers Oil Co., a subsidiary of The Texas Company, to test the Midway Dome. This company installed a rotary rig on the NW cor. SE Section 14-35-79, and drilled to a total depth of 3,800 feet when the hole was lost. It had a considerable show of gas in the Shannon sand at approximately 2,500 feet.

Operations were suspended on the structure in 1917 and 1918 while Mr. Parker was enlisted in the army, this service holding the claims intact while he was absent. In 1919 a contract was made with the Midwest Refining Co. and a test was started in the NW cor. NE Section 23-35-79. Gas was encountered in the lower Shannon, the quantity being estimated at 5,000,000 to 10,000,000 feet. The hole was lost at 2,900 feet and the rig skidded. The second hole was drilled to 4,822 feet and had some showings of oil and gas in the first Wall Creek sand of the Frontier formation. In 1921, the Inland Oil & Refining Co., subsidiary of the Continental Oil Co., the Carter Oil Co., and the Fensland Oil Co., a subsidiary of the Prairie Oil & Gas Co., drilled a joint test in the NE NW Section 32-34-77, on the Geary Dome. The hole was lost at 4,890 feet. The first Wall Creek had shows of both oil and gas. The total expenditures on the structures for all purposes was in excess of $600,000.

Difficulties Encountered

When the general leasing act of February 25, 1920, became a law, Parker and Wheeler and their associates took out prospecting permits under the several clauses of that act. Various difficulties were encountered in bringing about further testing on account of the widely scattered interests, the deep drilling that was required and the fact that prior tests had discredited the area. Then came Order No. 338 issued by the Secretary of the Interior on March 12, 1929, announcing a very restricted policy with respect to further extensions. Thereafter a more liberal policy was announced in cases where bonafide expenditures had been made for development and substantial geological work of value to the government had been performed.

Secretary Wilbur, it will be recalled, appointed a departmental committee composed of Commissioner Spry, of the Land Office, Dr. George Otis Smith, and Solicitor Finney, to pass upon and make recommendations to the Secretary on all permits and pending applications. The department took cognizance of the large expenditures which had been made, of the geological work and drilling that had been done, and of other equities that had been established. Mr. Parker laid all of these matters before the committee without reservation, with the result that the committee recommendd to Secretary Wilbur the reinstatement of applications and the extension of permits, and this was done.

Co-Operative Agreement

In order to bring about a complete understanding between all interests involved and to pave the way for a co-operative agreement that would meet the Government's desire for conservation, a large amount of detail work became necessary. Seventy-five co-locators, permittees and their heirs, representing all the holdings of government land on the structures, reached an agreement to co-operate in a group development of the three structures. There were 200 unit holders in two syndicates who were to be brought into the agreement. These resided in Boston and New England, London, Paris and The Hague. A special meeting was held on October 31 last and all agreed to the plan and as a result, Secretary Wil-

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Land Men Approve Unit Operation

Small Companies and Individual Operators Urged to Join the Movement Designed for the General Good

By James McIntyre

The heads of the land and leasing departments of most of major oil companies operating in Oklahoma and Kansas together with representatives of a number of smaller companies put the stamp of their approval on unit operation in leasing, drilling and production at a meeting held in the Mid-Continent Oil and Gas Association rooms Wednesday, November 13.

No objections whatever was voiced as to the merits of unit operation. The only questions raised were as to how the individual producer and small operating company can participate in the unit plan and these questions were discussed and answered by William N. Davis, the "father of unit operation," and by the representatives of the larger companies.

As a result of the meeting, which occupied two hours the following resolutions were adopted:

Purchase of Acreage

"That upon discussion and investigation, it is our observance that the practice of buying spreads of acreage, or a tract of acreage subject to the drilling of a well, has almost universally disappeared as a custom in the oil business. That it is further, the finding of this committee, that there is no justification for the financing of wells on this basis, and that it is the recommendation of this committee, that all companies and individuals be invited to discontinue this mode of financing their drilling projects in favor of unitized operations, to insure more economical and orderly development in harmony with the conservation policies of the State and Federal Governments and in the prevention of waste and duplication of effort.

Condemn Top Leasing

"That the practice of 'top leasing' either directly or indirectly, although not a legal wrong, is considered as unfair practice in the oil business. That this committee recommends that all companies and individuals refrain from considering the purchase of any top lease, as a recognition that a valid lease in good standing, is a right of personal possession, that should not be tampered with by attempted purchase of future possession thereof.

Providing for Exceptions

"That while conceding that it is sometimes necessary that dry hole contributions be raised to distribute the burden of expense of testing a lease, that such method should not be undertaken until every effort has been made to try to unitize the proposed drilling project, or to effect a co-operative development and producing agreement in advance of drilling the well."

Fred S. Cook, superintendent of the land department of the Prairie Oil & Gas Co., presided at the meeting and William N. Davis, vice president of the Phillips Petroleum Co. and president of the Mid-Continent Oil and Gas Association, was present and was given an active part in the discussion by reason of his leadership in the campaign to bring about unitization of field development in the industry.

Mr. Davis, by way of preamble, outlined his ideas on unitization which have been given more fully from time to time in The Oil and Gas Journal. Mr. Davis has been working on co-operative development and unit operation for nine years, and having discussed it with oil men in nearly every field in the country, and having listened to and answered all the arguments advanced against it, more particularly in the earlier years of his efforts, has reached a point where he is fairly filled with the subject and is prepared to clear up any misapprehension in the minds of doubting Thomases in the oil business.

They Want a Part in It

The representatives of the smaller companies present at the meeting, while expressing themselves as heartily in favor of unitization in principle, asked for assurances that the interests of the smaller operators would be protected in the general application of the plan.

Paul Ache, of the Reiter-Foster Oil Corp., said some oil men have the idea that unitization is an effort on the part of the major operators to put the "little fellows" out of business. He had no such idea, he said, nor neither had his associates in the Reiter-Foster organization, but he believed there should be assurances given that would disabuse the minds of the doubtful oil men. In other words the success of such a movement as this, he said, must be built up on mutual confidence and trust.

George Foster of the Devonian Oil Co. asked if the smaller companies would be given an opportunity of subscribing to the purchase of acreage in blocks to be unified, or to the purchase of units or undivided interests. The answer to this came from several of the land department heads of the larger companies who assured Mr. Foster that they would give him all he wanted in the way of opportunities along the lines of his inquiry.

The question also arose as to what could be done where it was found impossible to unitize a block and Mr. Davis replied that where unitization was impossible a co-operative agreement could be entered into in advance providing for the proration of the production of the block should it endanger the balance between supply and demand. Continuing, Mr. Davis said that while a 100 per cent unitization program may not be effected at first, he hoped it would come in time. The industry must work to make unitization as general as possible, and to provide for the few exceptions as they arose, until such time when the industry as a whole is convinced of its merit and its fairness to all taking part in it.

Old Producing Areas

The question of the development of old producing areas or to areas where only small pools could be looked for was discussed and it was made plain that the development of such areas could go on as usual. In the remote chance that a big well be completed in a sup-

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Gasoline Becoming More Standardized

Fourth Annual Survey Completed in Tulsa. Antiknock Value Stressed More Than Volatility in Premium Fuels

By W. T. Ziegenhain

Tulsa motorists are being supplied gasolines of high quality and samples secured from the filling stations of every refinery organization operating its own stations here show there is a close uniformity in volatility. Not one of the 34 samples of motor gasoline could be termed a "poor" fuel. The trend toward lower endpoint gasolines is still apparent and many of the regular priced motor gasolines are as volatile as some of the gasolines commanding premiums. Justification for the premium in most cases is based on the higher antiknock value of these special fuels rather than volatility.

These conclusions were drawn from the results of The Oil and Gas Journal's fourth annual survey of motor fuels in Tulsa. It is believed that what may be said of the quality of the gasolines sold in Tulsa may apply to the gasolines sold in other sections, particularly throughout the Middle West, for the 18 refining companies operating stations in Tulsa supply a large part of the gasoline consumed in the central states covering the territory as far east as Pennsylvania and as far west as eastern California.

For the first time, aviation gasolines were included in the survey and the same high quality that characterizes the motor grades is also found in the aviation fuels, although there is a wider variation in the distillation points in the latter fuels.

Ethyl Gasoline Gains Favor

Premium gasolines have come into great prominence over the past year and with the exception of The Texas Company and the Sun Oil Co., each of the 18 refining companies marketing its products through its own stations in Tulsa offer a premium grade which generally sells at 3 cents above the price of the regular fuel. The adoption of Ethyl Gasoline by more refiners as their premium fuel is also apparent. Six of the 16 premium fuels offered are Ethyl Gasoline, and within the next month three more companies will replace their present premium gasoline with Ethyl Gasoline making more than half of the premium grades sold of that type. The companies to make the change are the Transcontinental Oil Co., National Refining Co. and the Mid-Continent Petroleum Corp.

In general, the samples were collected from the stations operated by refiners through which their own products are being sold, so there could be no chance of obtaining duplicate samples. Of a total of 864 pumps in Tulsa, refining companies own and operate 481 of them, or more than half. Privately owned stations account for 150 pumps and the balance are mostly curb pumps distributed among garages, tire shops and large purchasers for personal consumption.

Included in the list of samples collected were two which did not come from company owned stations. One of these was a gasoline sold below the regular market at a station consistently maintaining a price below the market and the other sample was purchased from a privately owned station supplied with Ethyl Gasoline made by the Producers & Refiners Corp. This was made necessary since that company does not distribute its gasoline through its own stations in Tulsa.

Companies Included

The companies from which samples were obtained include the Phillips Petroleum Co., The Texas Company, Skelly Oil Co., Pierce Petroleum Corp., Magnolia Petroleum Co., Barnsdall Refining Co., Sun Oil Co., Shell Petroleum Corp., Transcontinental Oil Co., Cities Service Oil Co., Sinclair Refining Co., Continental Oil Co., Mid-Continent Petroleum Corp., H. F. Wilcox Oil & Gas Co., Independent Oil & Gas Co., Tidal Refining Co., National Refining Co. and the Southland Gasoline Co.

Numbers were assigned to the respective samples and the tables arranged so that a comparison may be made between the gasolines made by the same company for the two years and also the distillation tests on the regular grade and the premium grade of any one company. The regular grade was assigned numbers from 1 to 99, the premium grade from 101 to 199, the gasoline below the market, numbers in the 200 series and the aviation fuels the 300 series. For example sample 15 represents one company's regular grade, 115 is that same company's premium gasoline and 315 that company's aviation gasoline.

Tulsa gasoline prices are consistently about as low as in any other city, the present general station price being 19 cents for the regular motor grade, including a 4-cent tax. The average price in the United States at present is about 21½ cents. Despite the relatively low price in Tulsa, several cut-rate stations have been established and have operated for more than a year. A sample was taken from each of two principal stations operating on that basis and in both cases the quality of the gasoline compared favorably with some of the gasoline sold at the regular price. Justification for the lower prices in these cases has been based on the fact that these stations are operated with a different policy in mind. One of these stations sells a blend containing a high percentage of natural gasoline in naphtha, manufacturing the natural gasoline in its own nearby plants and purchasing the naphtha from refiners. The other company has located its station along the railroad siding and has eliminated distribution charges by dumping the tank cars of gasoline as received directly into the filling station storage. This latter company has also adopted a policy of "help yourself" in servicing cars. Air and water connections are provided for the motorists but a regular attendant is not available for servicing these.

In assembling the results of the tests on the individual samples, four classifications were made. The motor gasolines were divided in accordance with their respective prices, the regular grade which sold at the general market, the premium grade which was sold from 2 to 3 cents above the regular grade and the third classification included those that were sold from 2 to 3 cents under the general market. The fourth classification included five aviation gasolines.

Regular Grade

After averaging the distillation tests of the present gasolines sold as the regular grade, the results show further improvement in the quality over the average of a year ago, from the standpoint of volatility. The average results of the tests obtained over the past four years show the present motor fuels to be the most volatile. This has been secured principally through the greater use of natural gasoline and the conservation of the lighter fractions in the refinery as evidenced by the higher gravity, higher distillation loss, low initial and low 20 per cent points. Some cutting of yield from the crude to make a more volatile fuel is also apparent in the fact that this year the 90 per cent averaged 375° F. compared with 381° F. a year ago. The average endpoint was reduced from 423° F. a year ago to 416° F. this year.

The average results for the premium grade show less change in the distillation range for the two years. The present fuels show a slightly greater volatility over the first 50 per cent than a year ago, which further guarantees quick starting and speedier acceleration during the colder winter months. However, the second half of the distillation range shows little change. The average gravity of the premium fuels is below that of the regular grade which indicates the premium fuels contain less natural gasoline and are made by narrowing the cut from the crude to secure the proper degree of volatility instead of building it up with natural gasoline. This fact is further indicated by the lower distillation loss where an average loss of 2.5 per cent is shown for the regular grade and 2.0 per cent for the premium fuels. The reversal of the gravity, whereby the premium fuels are shown to have a lower average than the regular fuels confirms the much-heard statement that "gravity means nothing as an index of quality."

Increase Antiknock Value

Instead, refiners have been crowding into their premium fuels a maximum volume of those hydrocarbons which possess antiknock properties and it so happens that in general these are low in gravity for a given distillation range. Now the refiner is holding antiknock uppermost in mind in preparing the premium fuels

FOURTH ANNUAL SURVEY OF TULSA GASOLINES

In the past week, The Oil and Gas Journal completed its fourth annual survey of gasolines sold in Tulsa in which 39 samples were tested by the Tulsa Laboratories, Inc. These samples were obtained direct from the stations of the 18 refiners operating their own stations here so the results of the survey may be taken as an index of the quality of gasoline being generally supplied in the Southwest and Middle West. The results have been segregated into four groups for discussion, namely those covering the regular motor grade selling at the general market price, the premium grade, those consistently sold below the general market and aviation fuels.

Tulsa is being supplied with slightly more volatile gasoline than a year ago and not one of the complete list of gasolines could be termed "poor." Premium gasolines are rapidly gaining popularity and practically every company now offers the two grades. The gasolines sold below the market are not substantially different than some of those sold at the regular price. A high quality of aviation fuel is available at the Tulsa Municipal Airport.

REGULAR MOTOR GRADE

Tests on 16 samples of the regular motor grade show all of them to be well up to a commercial standard. Thirteen of the gasolines tested this year are practically the same as a year ago and in the other three cases the respective companies lowered the distillation range of their products. There is still a rather wide diversity in the volatility of the gasolines when comparing one company's gasoline with another, some of the regular priced motor fuels having a lower distillation range than the premium fuels. Three gasolines failed to pass all of the U. S. Motor specifications.

PREMIUM MOTOR GRADE

There are as many premium gasolines sold by refiners in Tulsa as the regular grade. Only two companies do not offer premium gasolines and they have adopted the practice of distributing low endpoint gasoline as their regular grade. They have featured volatility.

Ethyl Gasoline is being distributed by six companies at present and within another month three other companies will replace their present premium fuels with Ethyl Gasoline. Then, nine of the 16 premium fuels offered by refiners in Tulsa will be Ethyl Gasolines. Colored gasolines have been generally adopted to denote a premium grade and all but one of the samples collected were colored. Within another month this one will be discontinued as a premium fuel. Red predominates, but in addition, green, orange, and blue are used.

Antiknock characteristics have been stressed more than volatility in the present premium gasolines and it is interesting to note that only three of the 16 samples pass the distillation range recently established by the Government on the new special premium Motor Fuel V.

GASOLINES SOLD BELOW MARKET

Samples taken from two companies consistently selling their products below the market show each gasoline to be a suitable motor fuel. There is not a great deal of difference between the distillation range on these fuels compared with that of some of the regular priced gasolines, although neither of the samples tested pass all U. S. Motor specifications.

AVIATION GASOLINES

Five samples of aviation gasolines were tested and all were of very high quality. There was a relatively wide difference in the individual distillation points among the fuels. None of them is colored. These do not pass the Government's specifications for the fighting aviation grade, but, except for one of them failing at one distillation point, all of them pass the Government's domestic aviation specifications with a wide margin of safety.

but fully appreciates the need of volatility over the first 50 per cent of the distillation range to guarantee easy starting. The newer thought in preparing premium fuels has turned from the "high gravity-low endpoint" idea to that of choosing a stock of between 400 and 410 endpoint having an abundance of low boiling point fractions over the first 50 per cent of the distillation range.

While low endpoint gasolines have higher antiknock values it is generally conceded they do not produce as much power per gallon for the motorist and their lesser yield from the crude places a handicap on their manufacture. The trend in the past has been to sacrifice this difference in power and manufacturing cost in obtaining higher antiknock rating for the fuel. Now, however, this same end is reached by changes in manufacturing methods without these sacrifices. In some cases the antiknock value of the gasoline is brought up to a commercially accepted standard by a careful choice of those crudes which naturally contain gasoline fractions having high antiknock ratings such as the California and other naphthenic oils.

Another popular method is to segregate the cracked gasoline and hold this as a premium fuel. This is particularly true where the charging stock itself contains a high percentage of these desirable hydrocarbons. Vapor phase cracking is gaining favor as a means of producing premium fuels of a high antiknock value. The factor that seems to be gaining greatest favor among refiners at present is the use of tetraethyl lead, which when added to any gasoline, regardless of its source and antiknock deficiencies, brings it up to the commercial standard. The only limitation placed on this in actual practice is that not over 3 c.c. of tetraethyl lead may be used per gallon of blending stock because of the hazard of lead poisoning, and there are certain gasolines which require more than this amount to bring them up to standard.

Referring to Table 3, the distillation range on each of the Ethyl Gasolines may be studied. These gasolines are identified by the letter "E" over the top of each column of data. These samples were taken from the stations of the Independent Oil & Gas Co., Phillips Petroleum Co., Continental Oil Co., Wilcox Oil & Gas Co. and the Tidal Refining Co. The other Ethyl Gasoline sample was taken from a jobber's station supplied with gasoline made by the Producers & Refiners Corp. since this company does not sell its products through its own stations in Tulsa.

In reviewing the tests on these fuels, the gravity range is shown as 58.5 degrees to 63.2 degrees A.P.I. Three of the six premium fuels are below 60 degrees gravity and the average of all of them falls below the average of the nonpremium fuels. This in itself shows the newer attitude of refiners and marketers toward gravity as an index of quality. The initial points of the Ethyl Gasolines range from 90° F. to 104° F. and there is nothing singular in this compared to other premium grades, or even compared to the regular grade of motor fuels. The 20 per cent points range from 160° F. to 200° F. showing nothing unusual here compared to the other premium grades, and many of the regular grades will fall within this range. The balance of the distillation range of the Ethyl Gasoline may be analyzed in the same manner and it follows that these gasolines are not unique in their distillation range and in reality cover a rather wide range at the different points. This then further emphasizes the statement previously made with regard to premium gasolines in general that justification for the premium lies principally in the higher antiknock value.

Regular Motor Grade

In Table 2 the tests of samples of the regular motor grade of gasoline are tabulated and a reasonably close range of distillation points is shown for the entire group. Less difference is being shown in the quality of the various gasolines from year to year but the trend has been consistently toward greater volatility and lower endpoint.

In the list of 16 samples of regular gasoline collected, there were only three companies that changed the quality of their gasolines in the past year. The change was most apparent in Samples 5, 6 and 11. Sample 11 shows the most drastic change. A year ago this company's sample showed a 440° F. endpoint and the 90 per cent point was 410° F. This year that company is distributing a 392° F. endpoint gasoline with 90 per cent off at 362° F. A similar improvement in the gasoline is shown along the lower distillation points of the range. The change in the other two includes lowering the endpoint about 10 degrees, making the present gasolines show about 425° F. of endpoint compared with 435° F. endpoint a year ago.

Of the list of 16 regular gasolines three fail to pass U. S. Motor specifications. These fail only at the 90 per cent point wherein the Government demands 90 per cent to distill over at 392° F. There is still a diversity of opinion regarding the value of this requirement if there is a sufficient quantity of low boiling point fractions to support the combustion of the heavier portion of the gasoline. Since the U. S. Motor specifications are looked upon as a standard from a marketing standpoint this difference between the two classes may be made, but it could not be deducted from the results that these three fuels would necessarily give less satisfactory results in use than other fuels.

Compare With Motor Fuel

At this point it is interesting to review the tests on the premium fuels again, with the idea of checking these fuels with the specifications recently outlined and adopted by the Government in purchasing premium gasoline for special uses. The new specifications are known as Motor Fuel V and specify that 10 per cent distill over between 122° F. and 149° F. Exception is made on the lower limit when the distillation loss is less than 4 per cent but all of the fuels here pass the minimum specification. Two of them fail, however, on the maximum specification. Numbers 103 and 117 show 10 per cent at 160° F., or 11 degrees above the limit.

(Continued on Page 161)

TABLE 4—GASOLINES SOLD BELOW THE GENERAL MARKET

November 8, 1929

	251	252
Gravity	63.0	58.6
Initial boiling point	86	88
Per cent at degrees F. 10	130	156
20	160	194
30	194	220
40	224	246
50	266	268
60	316	292
70	356	326
80	386	356
90	416	392
Endpoint	440	434
Per cent residue	1	1
Per cent loss	5	2

December 1, 1928

	251	252
Gravity	60 5	...
Initial boiling point	84	...
Per cent at degrees F. 10	138	...
20	184	...
30	224	...
40	260	...
50	298	...
60	324	...
70	344	...
80	370	...
90	406	...
Endpoint	436	...
Per cent residue	4	...
Per cent loss	1	...

TABLE 1—AVERAGE TEST RESULTS

Average results on representative samples of gasoline marketed in Tulsa, Okla.

	Regular grade				Premium grade				Sold below market			
	1926	1927	1928	1929	1926	1927	1928	1929	1926	1927	1928	1929
Gravity A.P.I.	60.0	60.4	60.1	60.9	60.0	60.3	60.5	60.6	62.9	61.6	62.3	60.8
Initial boiling point	114	99	104	97	117	106	106	94	94	94	95	87
Per cent at degrees Fahrenheit 10	160	146	150	149	161	153	157	140	130	146	137	143
20	192	180	185	182	191	187	185	174	162	180	170	177
30	220	210	216	211	212	215	212	203	194	210	203	207
40	245	239	244	236	234	239	235	230	234	236	232	235
50	269	267	271	261	257	263	257	256	300	264	165	267
60	291	293	296	286	280	282	278	280	352	294	290	304
70	316	319	321	313	305	307	301	306	386	324	318	341
80	342	347	348	341	332	335	327	334	416	356	353	371
90	375	379	381	375	371	370	362	365	436	386	391	404
Endpoint	426	426	423	416	421	419	404	407	456	422	429	437
Residue, per cent	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.5	1.0
Loss, per cent	1.2	1.6	1.2	2.5	1.0	1.3	1.0	2.0	7.0	3.0	1.0	3.5

TABLE 2—REGULAR MOTOR GRADE REFINERY GASOLINES

November 8, 1929

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gravity	64.9	61.3	60.6	59.0	59.8	58.9	63.8	62.0	59.8	60.3	59.9	58.8	61.0	61.0	60.2	62.8
Initial boiling point	106	96	106	92	92	98	94	100	100	96	94	102	98	90	104	86
Per cent at degrees Fahrenheit 10	142	154	154	146	144	140	156	152	162	150	156	156	146	132	150	140
20	156	188	186	172	172	180	184	178	198	188	192	200	186	162	186	178
30	176	216	218	220	204	212	206	204	220	218	230	228	216	192	216	202
40	196	240	244	250	240	242	222	226	240	246	256	256	242	220	238	224
50	226	264	268	278	266	268	240	248	260	276	276	278	266	252	260	248
60	252	286	290	306	292	296	256	276	278	302	296	308	290	282	288	272
70	294	310	316	340	320	320	276	294	302	330	322	336	314	312	316	304
80	332	336	340	374	358	348	300	322	326	360	340	360	338	348	348	328
90	378	368	370	402	388	376	338	354	362	402	362	396	372	388	384	360
Endpoint	422	398	398	436	426	424	392	396	430	436	392	424	420	424	422	410
Per cent residue	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Per cent loss	2	3	3	2	2	3	3	2	3	3	2	2	3	3	3	2

December 1, 1928

Samples—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gravity	64.1	64.1	61.0	59.9	58.5	57.6	64.8	61.2	59.8	59.0	57.0	60.0	62.1	...	...	...
Initial boiling point	106	100	106	92	116	100	96	116	108	108	106	102	106	...	...	...
Per cent at degrees Fahrenheit 10	136	148	156	130	150	150	144	164	160	156	146	148	146	...	...	...
20	156	178	186	162	176	190	180	190	196	192	198	184	184	...	...	...
30	182	208	218	204	212	224	200	216	220	220	246	216	204	...	...	...
40	204	238	244	234	254	254	220	236	244	244	276	244	228	...	...	...
50	232	264	268	268	300	282	236	256	266	276	314	274	246	...	...	...
60	256	284	290	300	326	310	256	280	290	300	338	300	264	...	...	...
70	292	306	310	332	352	340	276	302	310	330	358	326	284	...	...	...
80	336	332	334	364	380	364	304	330	340	358	384	356	314	...	...	...
90	376	364	358	402	408	394	344	354	380	392	410	388	352	...	...	...
Endpoint	422	408	398	432	438	434	398	390	436	436	444	428	420	...	...	...
Per cent residue	1	1	1	1	1	1	1	1	1	1	1	1	1	...	...	...
Per cent loss	1	1	1	2	1	1	3	1	1	1	1	1	1	...	...	...

TABLE 3—PREMIUM MOTOR GRADE OF REFINERY GASOLINES

November 8, 1929

	101 E	102	103	104	105	106	107	108	109	110	111	112 E	113	114 E	115 E	116 E	117	118 E
Gravity	59.5	...	59.2	60.6	58.0	59.9	...	61.9	65.7	62.5	59.0	58.7	62.1	58.5	60.8	60.2	59.2	63.2
Initial boiling point	104	...	94	88	92	90	...	94	100	94	102	96	100	90	96	86	94	90
Per cent at degrees F. 10	136	...	160	132	136	140	...	144	144	136	144	146	132	136	140	128	160	132
20	160	...	200	170	168	174	...	172	166	166	174	180	162	172	176	174	200	170
30	182	...	226	206	206	202	...	202	184	192	200	218	186	206	208	208	226	196
40	208	...	248	238	242	230	...	222	202	216	228	246	216	236	240	238	248	228
50	236	...	268	264	272	252	...	246	218	242	254	274	248	258	266	274	268	252
60	266	...	288	294	296	274	...	266	232	270	274	300	276	296	290	298	288	268
70	308	...	316	334	324	298	...	286	250	292	296	322	300	324	316	326	316	294
80	338	...	336	366	352	330	...	314	272	318	326	352	332	352	346	364	336	316
90	368	...	362	396	378	364	...	338	316	360	366	376	364	378	376	392	362	346
Endpoint	426	...	406	436	412	410	...	372	380	398	418	406	400	414	418	422	406	394
Per cent residue	1	...	1	1	1	1	...	1	1	1	1	1	1	1	1	1	1	1
Per cent loss	1	...	1	3	3	1	...	2	2	3	1	2	2	3	1	4	1	2

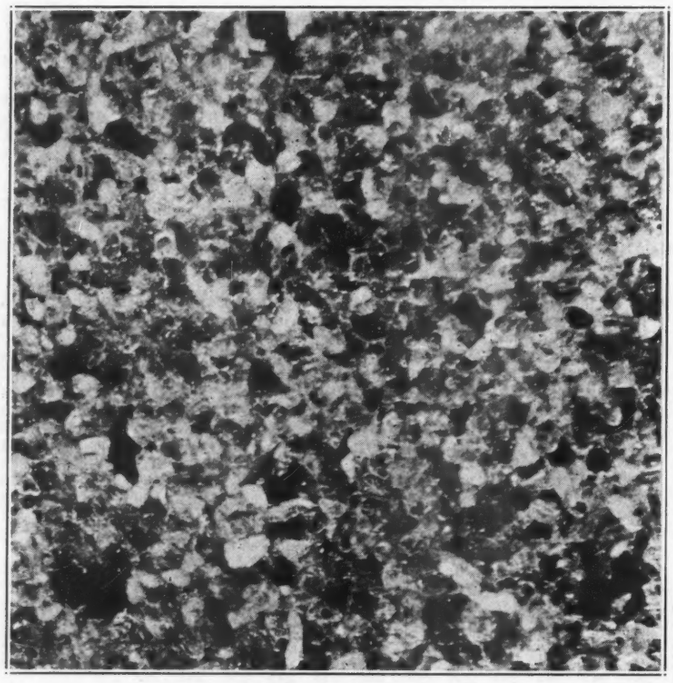
Some Physical Problems in Oil Recovery

Solution Rests Primarily on Fundamental Physical Properties of Oil and Oil Sands. Line of Progress Evident

By P. G. Nutting*

Facing the operator engaged in the recovery of spent oil are many physical, chemical, geological, engineering and financial problems each in itself complex and each interrelated with other problems so that what is best practice in one location is not necessarily such for another. Of these problems those of field engineering are probably the most difficult and the most vital to success. The solution of these problems rests primarily on the fundamental physical properties of oil and oil sands. The line of progress is evidently to work out basic results for a particular case, then to obtain similar data for other sands.

While the United States Geological Survey has made studies of oils and sands from many fields it has given most attention to those of the Bradford Field largely because it is a large and important field, the structure is simple, the oil is valuable and readily freed from the sand, recovery methods are being rapidly advanced and many operators willingly co-operate by taking and submitting cores. Thanks to a recently developed cable coring tool, the producing sands can be cored at a moderate expense.



Typical Bradford sand, magnified 30 times.

The field operator is primarily interested in the flooding properties of a sand —how much water it will take, the best pressure to use, where to pack off, and the rate of falling off of intake at a given pressure. These are matters of grain size, pore size, grain packing and of variations of these properties through the producing sand. Obviously the first thing to do is to study the sand itself then compare it with another for which appropriate operation conditions are known. Screen analyses and permeability tests are directly applicable. An enlarged photograph gives an excellent idea of a thin section of the sand grain size and packing and of the relative sizes and shapes of pores. The photograph reproduced (30 times) shows the pores and grains of a typical Bradford sand.

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1. Grain Sizes of Oil Sands

The Bradford sands are neither fine nor coarse as oil sands go but cover the intermediate range from .09 to .18 mm. in mean diameter. In perhaps 50 analyses. I have found but two producing sands finer than .09 mm.—one from the Sundance in Wyoming, another from a shoestring sand at Garnett, Kans. Two from Texas, from the Texhoma and Oldham sands, are slightly coarser (.21 mm. mean). The Big Injun sand (West Virginia), runs about .11, the Tensleep (Wyoming) .12, the Third Frontier (Wyoming) .10 mm. In range of variation in sizes from the mean the Bradford sand is similar to most others, the bulk of the sand lies between one size and another twice or half that size.

In Figure 1 are shown the screen analyses of five typical Bradford sands. Curves Nos. 1, 2 and 3 are from 20, 40 and 109 feet in the oil sand of a well (12-S) of the State line lease midway between Bradford and Olean. They are typical coarse, medium and fine sands. Curve 4 is representative of the top half of the 20-foot Minard Run sand, Curve 5 of the bottom half—a tight fine sand being flooded at 1,500 pounds pressure with excellent results. At the eastern end of the Bradford Field near Wellsville, N. Mex., where the sand is broken up in large pockets, the sand sizes are within these same ranges as given for the central (State line) and southern (Minard Run) parts.

2. Pore Sizes

The pores in an oil sand, as shown by the photomicrographs of thin sections, are much larger and more varied in size than would be obtained by shaking down loose sand in water, their walls appear smooth and worn or of finer material troweled like plaster. It is evident that they are not caused by tearing out grains in grinding the section. We cannot make such pores by any known laboratory process.

In sand settled in water the mean pore diameter is roughly one-fifth the grain diameter, in the oil sands, the average size is about that of the grains. Many pores are large enough (in section) to hold 5 or 10 grains while a few would hold 20 or more. These statements hold for either fine or coarse sands. There are considerable areas containing no pores, the grains being fitted together like masonry. The distribution of sizes is not very different from that of the grains shown in Figure 1. It may be feasible to measure and count the pores and thus compute permeability.

It is not difficult to make a wax cast of the pores in sand. I have made several by soaking a lump of sand in melted ceresin wax, then dissolving out the sand with hydrofluoric acid. These casts were shaved off flat with a razor blade and photographed. It is hardly worth while to reproduce such a print for the wax cast, under the microscope, has precisely the appearance of a slice of bread.

Horizontal and vertical sections of Bradford sand show no appreciable difference in size or character of pores nor do permeability tests show any differences. The pore network shows no trace of bedding planes and favors no particular direction and no pore extends very far without an abrupt turn or branching. The occasional very large pores, called "worm holes," at first caused some anxiety on account of their possible effect on flooding certain sands but these turned out to be merely local pockets and negligible in flooding operations.

Sand—	SL 20	SL 40
Mean grain diam.	.183	.147
Porosity %	17.8	15.3
Permeability	16.4	7.9

The pores of other oil sands vary widely from the Bradford type. At one extreme is perhaps the Tensleep of Wyoming, a fine quartz sand with the grains lying much as though deposited in water. At the other extreme are the limes. In the Embar the grains are chiefly fine calcite crystals (with no quartz) and the few large pores appear to have been dissolved out by migrating water.

3. Structure

The Bradford sands are all hard, hard enough for building stone. The drill holes require no casing. Except for the pores, the grains are fitted together as though by a mason. Disintegrating the sands without breaking the grains for finding the grain size distribution requires considerable skill but with practice is readily accomplished. The seams and crevices between grains are quite filled with much finer material, precipitated silica and occasional gypsum. Oil is rarely found between the fitted grains, the bulk of it is confined to the pores and the pores are rounded (not crevices) and fairly smooth-faced and continuous but of the utmost crookedness. In most cases the fineness increases quite regularly with depth but the pores of the finer lower sands are similar in every respect except size to the pores of the upper coarser sands.

4. Permeability

The five typical Bradford sands whose grain size distributions are shown in Figure 1 were found to have the following mean grain sizes, porosities and permeabilities for tap water.

SL 109	MR3-6	MR 13	MR 18
.105	.099	.090	.090
10.0	15.1	19.4	15.9
2.6	1.9	1.2	1.1

The first sand (SL 20) is a coarse loose sand containing very little oil and is usually packed off, the others are all good producers. The range for productive sands of this type is then from about 10 to 1 on this scale. The MR sands are being flooded with an augmented (surface) pressure of 1,000 bbls. with excel-

(Continued on Page 160)

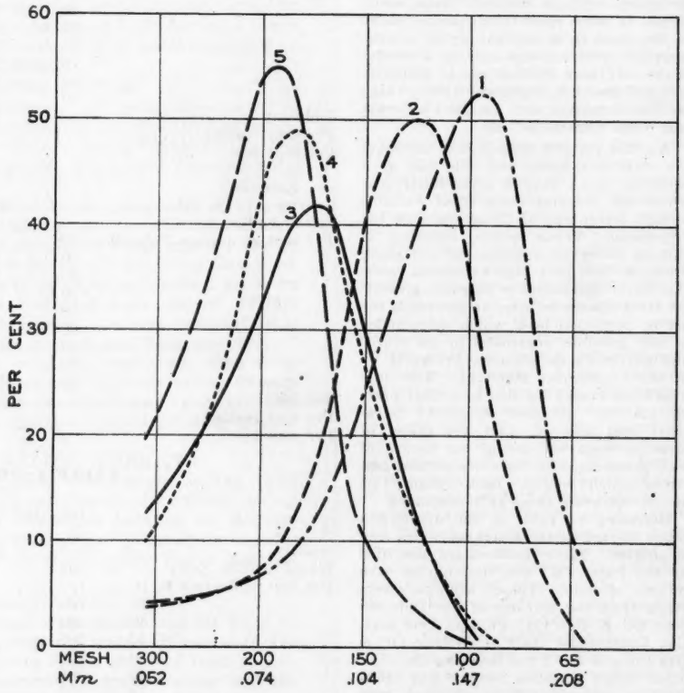


Figure 1—Typical Bradford sands.

1	SL	20	Mean Diam.	0.183	Pore space	17.8	Permeability	16.4
2	SL	40		0.147		15.3		7.9
3	SL	109		0.105		10.0		2.6
4	MR	3-b		0.099		15.1		1.9
5	MR	13, 18		0.090		19.4, 15.9		1.2, 1.1

Curtailment Beneficial to Producers

Proration Averts Market Cuts and Reduced Production Yields More Income Than Greater Quantity at Low Prices

By James McIntyre

Proration is working satisfactorily. Production is about level with requirements and the producer is receiving more for what he is producing than he would have received if production had been permitted to run pell mell and prices been slashed, as they have always been when the supply greatly exceeds the demand.

For the first time since the big one-year shut down movement in Pennsylvania in the late eighties oil producers in general have agreed that there is nothing but financial loss in taking excess oil out of its natural storehouse in the earth and throwing it on a glutted market. There have been attempts at curtailment and proration in scattered areas in California, Texas and Oklahoma, but never before has there been any general movement on the part of producers in all the overproducing states to conserve their crude in the ground at the one time.

In the big pools in California, Santa Fe Springs, Long Beach, Ventura Avenue, Seal Beach and Elwood, production has been cut about 33 per cent weighted average, thus far. In Texas Pecos County's big pool, the Yates area, is consistently kept far below the enormous potential of which it is capable. In Oklahoma the Greater Seminole area, the Oklahoma City Pool and the Logan County deep sand pool are all being prorated, the Oklahoma City and East Earlsboro Pools 40 per cent, and the others 20 per cent. In Kansas the Sedgwick County and McPherson County Fields are being administered with good judgment, and production has been lowered about 20,000 bbls. a day below potential. In the remainder of the country there is no serious overproduction, nor new flush fields outside of the possibility of a big pool in Van Zandt County, East Central Texas, where unit operation was adopted soon after the completion of the discovery well and the possibility of a big pool at Kettleman Hills, California, a shut-in area.

Averted a Price Cut

No doubt exists in the mind of any oil man that had production been permitted to proceed unrestrained a reduction in the price schedule for crude oil would have become general. It is not unreasonable to suppose that it would have amounted to a 50-cent reduction, if not more, in the Mid-Continent "sweet" oil fields. California gave us a foretaste of what could happen if production were not curtailed. Out there prices were reduced an average of about 50 per cent, and more in certain areas. In Santa Fe Springs, for example, 33 gravity crude, weighted average in that field, was cut from $1.35 down to 60 cents and every grade of crude from 29 up to 39.9° in the same field was reduced to a flat 60 cents from a scale that varied from $1.15 up to $1.65. Ventura Avenue and Long Beach were subjected to cuts that were devastating. Then the producers obeyed the demand of the State of California that they conserve gas and cut their production. When this was done old prices were resumed.

Oklahoma and Kansas

Oklahoma is capable of producing 850,000 bbls. a day from the wells already completed. The production has been curtailed to about 650,000 bbls. The value of the potential production at an average of $1 per barrel would be $850,000 per day. The value of the 650,000 bbls. actual production is $975,000. In Kansas where the weighted average price is at least $1.50 per barrel, the producer is receiving about $34,000 per day more for his curtailed production of 109,000 bbls. than he would receive for the 129,000 bbls. he can produce at $1 per barrel. Both in Oklahoma and Kansas the production end of the oil industry is actually benefiting $159,000 per day.

Californians Given Object Lesson

California producers have been given an object lesson in the restoration of the crude schedule which prevailed throughout most of this year. Had they continued their mad orgy of overproduction they would have received less money for the full volume than they are receiving now for their reduced production at the restored price. Santa Fe Springs was producing 255,000 bbls. a day before curtailment went into effect, and can produce that amount now, but at 60 cents per barrel the producers would have been receiving $153,000 per day. With a production of only 150,000 bbls. at $1.35 weighted average price, they are receiving $202,500 per day, or $49,500 per day more than under the low price schedule. In Long Beach, where the weighted average gravity of the crude is 28°, the price was cut from $1.17 per barrel to 60 cents per barrel. The field can produce 166,000 bbls. per day, and is producing only 112,000 bbls., but the producers' income is $131,400 a day, where it would have been $99,600 at the lowered price, a saving to them of $31,440 per day, in money without mentioning the saving of 44,000 bbls. a day in oil. In the same manner Ventura Avenue producers are benefiting $23,580 per day and those in Seal Beach $2,080 per day, and are keeping their surplus stored in the ground.

The situation in the Mid-Continent Fields in Texas is very much the same as in Kansas, Oklahoma and California. While it may be said that the Winkler Pool is producing all the oil it is capable of, there is no doubt that Pecos County alone could flood the country with oil. The Yates Pool easily has a potential of 500,000 bbls. per day. On paper it is estimated from five to ten times that figure. Texas has a potential production of 1,225,000 bbls. per day, figuring Pecos County at 500,000 bbls. It can produce more than California if every well in California was permitted to flow or pump to its capacity, but the pipe lines could not handle such a production and if they could there would be no place to store it unless the most gigantic storage building campaign on record was put into effect at a cost of millions. Texas producers have acted wisely from the start. They went to the State and asked its assistance and the State Railroad Commission took charge of affairs and ordered a proration of runs, and the order has been obeyed with little complaint. The Winkler and Pecos County Fields have always been subject to a low price of crude because of the sour quality of the oil and the large production, but the price was increased and put on a gravity basis last May following the Prairie Oil & Gas Co.'s 30-cent increase in the "sweet" oil fields of Kansas, Oklahoma and Texas.

Potential Production of United States

At this writing the potential production of the United States is 3,557,000 bbls. and of this quantity 938,000 bbls. a day is being kept in its natural storehouse. If it can be made to remain there by voluntary action on the part of producers and the orders of state authorities it will stabilize the price of crude oil and delay the ultimate exhaustion of America's crude oil resources. The present price of crude oil is not high in any field. If anything it is too low to make it profitable to produce oil on old and greatly depleted properties, where, in the aggregate, there is a tremendous investment. The price last spring was so low that thousands of producing properties were being operated at a loss. The increase in the Mid-Continent Fields made it possible for owners of partly depleted properties to make repairs and replacements, clean out their wells and go on producing at a little profit.

Producers Benefited

The average price of crude in Oklahoma produced and purchased by the Prairie Oil & Gas Co. is $1.50 per barrel. This is very close to 30 cents per barrel more than it was last May when the Prairie Company advanced the price, which increase was followed by all the other purchasers. Since the price was advanced Oklahoma has averaged about 700,000 bbls. per day in production. The 30 cent increase added about $210,000 per day to the income of producers and royalty owners, or about $36,750,000 from the last week in May to November 12.

The increase was not sufficient to bring on much increase in drilling operations. At the close of April 740 wells were listed as drilling in Oklahoma. At the end of October 757 drilling wells were listed, an increase of 17. In Kansas where the price was increased at the same time, May 20, there has been a falling off in the number of wells drilling. At the close of April 301 wells were listed as drilling in Kansas, while at the close of October the number had fallen to 268, a decline of 33. Taken together Oklahoma and Kansas drilling operations fell off 16 wells, notwithstanding the 30-cent increase in the price of crude, which in former days would have resulted in a revival of field operations.

It will be remembered that the whole Mid Continent area was given an increase in price last May. This amounted to 35 cents per barrel for 36 gravity oil. The result of this general advance in the market resulted in a net increase of only 58 drilling wells in Kansas, Oklahoma, North Louisiana, Arkansas, and Texas outside of the Gulf Coast and Southwest Texas. The increases noted are in Oklahoma, 17; North Central Texas, 40; West Texas, 21; Texas Panhandle, 9; North Louisiana, 23; total 110. A decline in drilling is noted in Kansas, 33; East Central Texas, 9; Arkansas, 5; total 52; net increase 58.

The 10 cent increase in Gulf Coast Grade A oil and the increase in the gravity scale prices for Grade B oil resulted in an increase of 42 drilling wells in the big area covered by the Gulf Coastal Field, but on the other hand the Southwest Texas Field which was given an increase ranging from 10 to 25 cents shows a decrease of 28 in drilling wells as comared with the April figures.

The Rocky Mountain Fields were also accorded an increase in price but while there were 427 drilling wells at the end of April there were only 411 at the end of October.

In all the fields east of California an increase of 200 drilling wells is recorded at the close of October as compared with the close of April, and a remarkable feature of this is that more

(Continued on Page 162)

CALIFORNIA HAS CURTAILED OUTPUT 200,000 BBLS. DAILY SINCE NOVEMBER 1

By L. P. Stockman

LOS ANGELES, Calif., Nov. 19.—California operators have effected a reduction of approximately 200,000 bbls. a day in state production since November 1 and if Ventura Avenue operators snap into line a further artificial curtailment may be anticipated. California was producing around 875,000 bbls. of crude oil a day on November 1 as compared with a current output of 665,000 bbls. Some of this decrease was, of course, due to a normal decline in flush wells but the greater part can be attributed to voluntary curtailment.

Production figures indicate the Ventura output has been cut about 15 per cent and another 15 per cent is scheduled to be made shortly. Neil Anderson, umpire of the Long Beach Field, has advised the writer that he will have the production of that field down to the allowable quota of 100,000 bbls. per day by November 23 as all operators are cooperating to the fullest extent. Long Beach production was 12,000 bbls. a day in excess of the allowable maximum last week but this was due to the completion of new wells and a number of minor adjustments at the last minute. Umpire Anderson has a tough assignment because of the large number of diversified holdings at Long Beach and he is to be congratulated in securing 100 per cent representation.

Paul Grimm, umpire at Santa Fe Springs, got his field production down to the allowable maximum of 150,000 bbls. a day last week and hopes to keep it around this level notwithstanding that development reports indicate the probable completion of numerous new wells during the next 30 days. The potential production of Santa Fe Springs for the next two weeks was placed at 273,628 bbls. a day. In order to bring this down to 150,000 bbls. operators will be obliged to effect a curtailment of a little over 45 per cent. In addition to this restriction operators will be penalized the exact amount produced in excess of their allowable quota for the first period which ended on November 15.

Field totals indicate an aggregate excess of 15,476 bbls. per day during the first period so that the allowable production for the second period will be 134,524 bbls. per day.

A detailed check of operations covering Santa Fe Springs shows that the allowable production of the General Petroleum between November 16 and 30 totals 22,573 bbls. daily. The Union Oil Co. will be allowed to produce 20,335 bbls. daily; Standard of California, 18,309 bbls.; The Texas Company, 15,345 bbls.; Shell, 11,648 bbls.; George F. Getty, 8,710 bbls.; and Wilshire Oil Co., 6,239 bbls. This allowable production is exclusive of any production added by new wells completed during the period in question. It is interesting to note that the Union Oil Co. was the only major concern to produce below its allowable quota during the first two weeks' period. This company produced 197 bbls. a day less than its allowable production and will therefore be permitted to produce a like amount in excess of its maximum during the next 15 days. George Getty and the Wilshire Oil Co. failed to get down to their allowable quota. These operators will therefore be obliged to reduce their daily production during the next weeks by 7,769 bbls. and 3,836 bbls. respectively.

The gas conservation law sponsored by state officials and progressive operators will be a dead issue until the California State Supreme Court convenes in Los Angeles on December 11 and it is very probable that this body will delay the hearing for at least a week after it convenes.

Bain Reviews Situation in Colombia

Characteristics of People and Country Should Be Considered. Government Has Been Stable for 40 Years

By L. G. E. Bignell
Petroleum Engineering Editor

Foreigners of all nations seeking concessions or business opportunities in Latin American countries will do well to remember that the nationals of those Latin American countries have long lived under conditions quite unknown to the average citizen of other countries and it would be well for one trying to gain a foothold in South American countries to first make a careful study of the native conditions and try to adapt himself to them rather than criticize and try to make the Latin Americans conform to the ways of outsiders.

This was one of the many thoughts left by Dr. H. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers in his discussion of Colombia, South America, and its opportunities and possibilities for foreign investment, given before the joint meeting of the Tulsa Geological Society and the Mid-Continent section of the A. I.M.E. in Tulsa, Monday evening, November 18.

Doctor Bain was one of a commission of four who met at Bogota, the capital of Colombia, during the early part of this year to assist the minister of industry in framing laws that would govern the conditions under which petroleum and its products might be sought for, produced and refined in Colombia. After these recommendations were completed, they formed the basis for a new set of laws that are now being considered by the senate and chamber of the Colombian congress.

Doctor Bain opened his talk with the statement that Colombia is not a far distant country from the United States to be reached only after many trials and hardships, but is, as a matter of fact, reached by first class steamer service from New York City or the Pacific Ocean ports—the trip from New York to Cartagena taking less time than an ocean voyage from New York to Houston, Tex.

Colombia's main ports, Cartagena and Barranquilla on the Caribbean Sea are ports of call for fast boats that pass through the Panama Canal destined for Pacific Ocean ports, and its Pacific Ocean port is Buenaventure also reached by the main lines of steamers that ply the Pacific Ocean.

Kindly and Friendly People

It seems quite natural to wonder about a people in any foreign land, and Doctor Bain said that he had some rather wrong ideas of the land and its people when he started on his journey last winter to serve on the commission, but he found to his agreeable surprise that the Colombians are "just folks," kind, friendly and most anxious to please, and that the government is sincere in its attitude toward foreign investors who desire to develop petroleum concessions in that country. This is made evident by the fact that the commission was invited to meet at Bogota for the expressed purpose of assisting in the framing of suitable laws that would be based upon the experience of the engineers and executives of the older oil-producing countries.

The character of the country is not well understood by those who have not had the opportunity to visit it and study at first hand its many interesting topographical features, beginning with the low white beaches along the Caribbean Sea with the white houses in the foreground and the dense green tropical foliage further on, which gives the effect of "a hard boiled egg set in a lettuce salad" to quote from one of the very descriptive phrases of O. Henry when he wrote about that country.

The tropical low lands extend to the south from the shores of the Caribbean Sea along the river valleys, and these streams form the main arteries of commerce between sea ports and inland cities.

The very fact that this country is made up of valleys where tropical conditions exist and high plateaus or table lands where the climate is most delightful and invigorating the year round, has had its important part in the development of the people and this land.

It is an old country so far as its inhabitants are concerned for the Indians who still live in that portion of South America are the descendants from the older tribes who were found there when the Spainards made conquest and sought for the El Dorado of their dreams. This is to be contrasted with the conditions in this country where our native Indian population has dwindled to but an insignificant part of its number as found here by the old English and Dutch settlers.

Stable Form of Government

The republic of Colombia has been a stable form of government for over 40 years, and has enjoyed its share of prosperity during this time out of the development of its natural resources of precious metals, gold and platinum, cotton, tobacco, coffee, dye woods, rubber and many other commodities grown on tropical plantations.

This prosperity has supplied the people of that country with a comfortable living, and because of the peculiar arrangement of the mountain ranges and the tropical river valleys and shores around them, the tendency has been to concentrate population in those areas where living conditions are most ideal, and as those districts have been highly cultivated and improved in years past there has come a time when the Colombian has found himself without need for further development of cities and lines of communication, and has therefore turned to educational institutions and higher learning as an outlet for his energy.

Doctor Bain said that it was a most interesting fact to him to learn that the people of all classes and degrees of education turn largely to poetry and oratory for their means of expression and these arts have been developed to a very high degree.

With the physical conditions of the country such that the population has been divided up into relatively small isolated groups, each separated from easy communication with the other because of the barriers of mountain ranges or dense tropical forests it is only natural that education of the higher type should be developed in each of these communities and there are many very old universities of high standards in Colombia.

To get a mental picture of the country, perhaps as he saw it from the airplane which is used to make the journey from Cartagena to Bogota, Doctor Bain said the country reminded him greatly of a number of islands reaching up out of a tropical sea of vegetation, and if this is borne in mind, and it is further remembered that this country is geologically of very recent age, and because of this fact road building is difficult, it will be easy to understand how the very type of country has made its impressions upon the inhabitants.

Railroads

In another instance the isolation of the country expresses itself by the type and character of the railroads built there. They seem to start from nowhere and end in the wilderness, and the type of road bed and train service is not by any means what we are accustomed to in this country, so the Americans are very much inclined to grumble at everything that has to do with a Colombian railway system.

But it is somewhat of a question if the American who is so quick to complain could have done as well if the task had been assigned to him for completion.

In the first place the mountains are of a comparatively recent geological age and therefore not stable and when the grades are cut alongside of the hills they will slide and fill and like the now famous Culebra cut in the Panama Canal, but on a much smaller scale, they will require constant attention.

Then because of the location of the supplies and the mode of transporting goods that existed before the advent of the airplane and river steamer it was necessary to start the railroads from several points at one time and in trying to make the different sections meet exactly, and this under the existing topographical and physical conditions of the land, was found difficult.

So while it is easy to criticize and tell how it could have been done better, it should be remembered that these Latin American people have good minds and plenty of energy and have lived with these environments for many generations and their achievements are the results of many attempts made by many men and represent just about what is the best to be expected in a country of that type, when resources in labor and capital is considered.

In this country where we make things upon bulk production basis and can therefore afford to equip for the big jobs we undertake it is not hard to perform tasks that seem to the American in South America small and insignificant, but if he were transferred to those countries and given the work to do with native conditions only he would perhaps not get as far with it as the native engineers did.

Factor in Oil Laws

All of these conditions play their very important part in the consideration of the proposed laws to govern the development of the petroleum industry in Colombia, for they are just as much a part of the thing as any statute that can be placed upon the records of that or any other Latin American republic, and when the American or other foreigner is prone to criticize what has been done and what is to be done, he should first try to place himself squarely in the place of the natives of that country and view through their eyes, and study with their background, the conditions as they actually exist.

It is their country and they are proud of it and justly so for they are the survivors of a race that is older than the

(Continued on Page 163)

INDUSTRY FACING TEST NEXT YEAR OF ITS COLLECTIVE MANAGEMENT

By Joseph E. Pogue*

When 1929 has drawn to a close, it will be found that stocks of crude oil in the United States have increased about 54,000,000 bbls., while the gasoline carryover will stand approximately 7,000,000 bbls. in excess of last year. At the same time, reports of oil company earnings already available indicates that 1929 has proven to be a reasonably profitable year, with earnings running somewhat in advance of 1928 on a per share basis and among the largest in the history of the industry, in the aggregate number of dollars. If these unfavorable statistics of supply and demand had been known in advance, such an outcome would doubtless not have been generally anticipated and one is confronted with the necessity of explaining the apparent anomaly.

Four factors stand out as contributory to this outcome. These are: The segregation of overproduction, in considerable degree, in California; the development of an extraordinarily large demand for gasoline, fuel oil, and lubricating oils; the partial control of crude production, and the hope of still greater control, with some realization of that hope in the closing months of the year; and the lowering of costs arising from a larger volume of business and greater economies in its conduct.

California's Overproduction

The concentration of overproduction in California is indicated by the fact that of the 52,000,000 bbls. of crude oil added to storage during the first nine months of 1929, 65 per cent represented additions to inventories in California. Also, while production of gasoline throughout the United States during that period showed an increase of 16.8 per cent over the like period of 1928, the rate of increase in the output of California gasoline was 40 per cent. Markets east of California were partly protected from overproduction in California by a slight shortage of tankers, reflected in a substantial rise in charter rates.

The demand for oil products, particularly gasoline, proved larger than the trade expected, and this was perhaps the most important factor in supporting markets in the face of general overproduction. Thus, for the first nine months of 1929, gasoline consumption showed an increase of 14.7 per cent; fuel oil consumption, of 8.5 per cent; and all petroleum products combined, of 9.4 per cent. As a result of the exceptional demand for gasoline the price level of this commodity, despite some measure of overproduction, was enabled to rise moderately during the first half of the year and, although receding over the second six months, the general average was profitable. As approximately two-thirds of the income of the petroleum industry is derived from the sale of gasoline, the importance of the price course of this product is apparent.

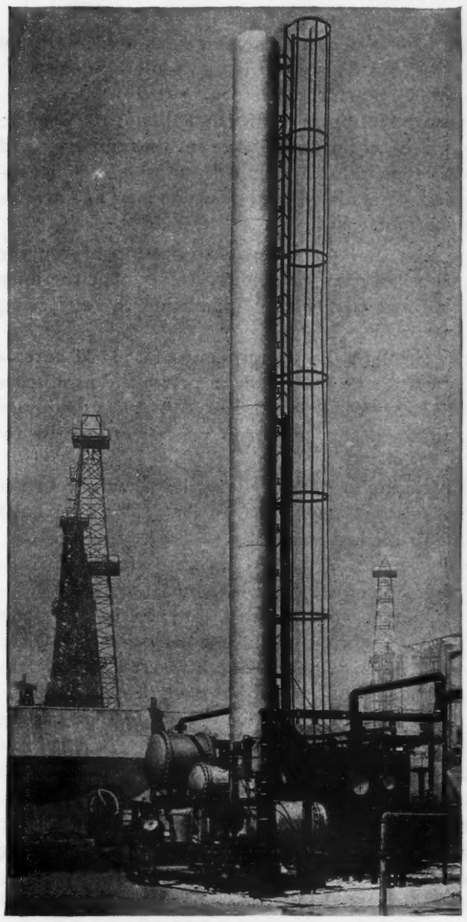
Control of Crude Oil Supply

Control of crude oil supply, although far from adequate, likewise proved a supporting influence on markets. Proration in the flush fields in the Permian Salt Basin of West Texas continued without interruption and with but little change throughout the year. Proration in Oklahoma was instituted in the winter, broke down under the influence of an

(Continued on Page 161)

*Before the Harvard Economic Society in Boston, Mass., November 15, 1929.

From a $$$ and ¢¢¢ Standpoint



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MORE OIL FOR LESS MONEY

Now that the industry has managed, at last, to gauge crude oil production in line with demand, let us by all means continue to keep it that way.

There is no longer room for any argument about its being possible, practical or advisable.

It can be done because it is being done.

Its adoption in California rescinded a price cut there and averted one elsewhere.

The whole industry now realizes, as never before, the direct relationship between overproduction and price reduction.

For years we have seen temporary overproduction checked by cutting the price of crude, but without apparently making any lasting impression upon the industry as to its economic significance.

It seemed to be accepted as part of what was called "the game," up today, down tomorrow, up again the next day, the everlasting see-saw, with the optimists thinking always of the upswing as normal and the downdrop as a mere interruption.

There never appears to have been any studious attention given to figuring the average or considering how much better off the industry would be with a stabilized production in line with demand and a stabilized return.

Of course not, because the traditional oil man thought of it as a "game" and not as a business. Most of them were more concerned with the hope of making a fortune than with the prosaic details of making a living.

But that day has passed and with it most of that type of oil man.

For one thing the overproduction got to be too big for even the most optimistic to think of it as temporary. The rapid fluctuations in price that formerly kept hope alive were gone; change, if any, pointed downward so long as overproduction continued.

The larger companies, conducted as a business, had long understood the situation but their arguments were waved aside as propaganda. It could be heard on every side among the smaller producers that the big companies were trying to squeeze them out, although the facts were plain enough for anyone to read their meaning.

Too much oil, too much sugar, too much wheat, too much cotton, too much copper, all meant the same thing, lower prices for the producers in each line affected.

If there was only enough sugar, wheat, cotton, or copper produced to meet the market demand reasonable prices prevailed, the producers got a fair return for their work, the consumers were satisfied and there was prosperity all around.

On the other hand with overproduction and low prices the producing industry went into a depression, correspondingly affecting general business and the prosperity of the consumers who later had to pay higher prices because of reduced production.

The oil industry has been through these stages so often as to be tiresomely familiar with them. It is time to try something else.

California's case should be a lasting lesson.

When mounting overproduction in the flush fields of the Pacific Coast threatened the price structure of the entire industry, and agreement on co-operative curtailment seemed impossible, a sweeping reduction in prices was announced, just as crude cuts had always followed menacing overproduction.

Fortunately in this case the education of the producers on the necessity for conservation had gone far enough to see that the only way to save the situation was to secure co-operation in restricting production to market needs.

The result was that, through the curtailment of 183,000 barrels a day in production, avoiding the reduction in price, the producers of these flush California fields were able to save $104,500 a day more than they could have obtained for the larger production at the reduced price.

This is not to speak of the effect on the price structure in the rest of the State and elsewhere and the fact that they still have 183,000 barrels a day more oil in reserve.

The same thing was seen in Oklahoma where, before the California agreement, a cut of 50 cents a barrel seemed inevitable.

A 50-cent cut in Oklahoma would have meant dollar oil. It is very easy to figure that since without curtailment agreements Oklahoma's production would have gone to 850,000 barrels a day, the total return on that unrestricted output would have been $850,000.

But with production kept in line with demand at 650,000 barrels a day and the price retained at $1.50 the producers would receive $975,000 a day or $125,000 more for 200,000 barrels less oil which would still be available for the future.

Anyone can see that this is to the advantage of every producer, large or small, and that all reap proportionate benefit by the keeping of production in line with market requirements instead of piling up unneeded overproduction and cheapening every barrel produced.

On May 20 last, following the reduction of Oklahoma production to market needs, the price was advanced 30 cents because oil, under overproduction, had been selling wastefully below its intrinsic value. That one readjustment meant $45,000,000 more to the producers of Oklahoma, big and little, from May to January.

With these concrete object lessons before them how can any producer, large or small, imagine that overproduction is not going to hurt him or that he will not be vastly better off if production is kept down to actual demand and the price stabilized accordingly?

The whole industry can be steadily prosperous if production is gauged to needs; the consumer will be assured a regular supply at a reasonable cost and the entire country will be benefited by the prosperity of one of its largest and most essential industries.

All that is needed is to convince every producer and every manufacturer in the oil business that his individual prosperity is inseparably bound up in the prosperity of the whole industry and that overproduction by any unit is a menace to that well being.

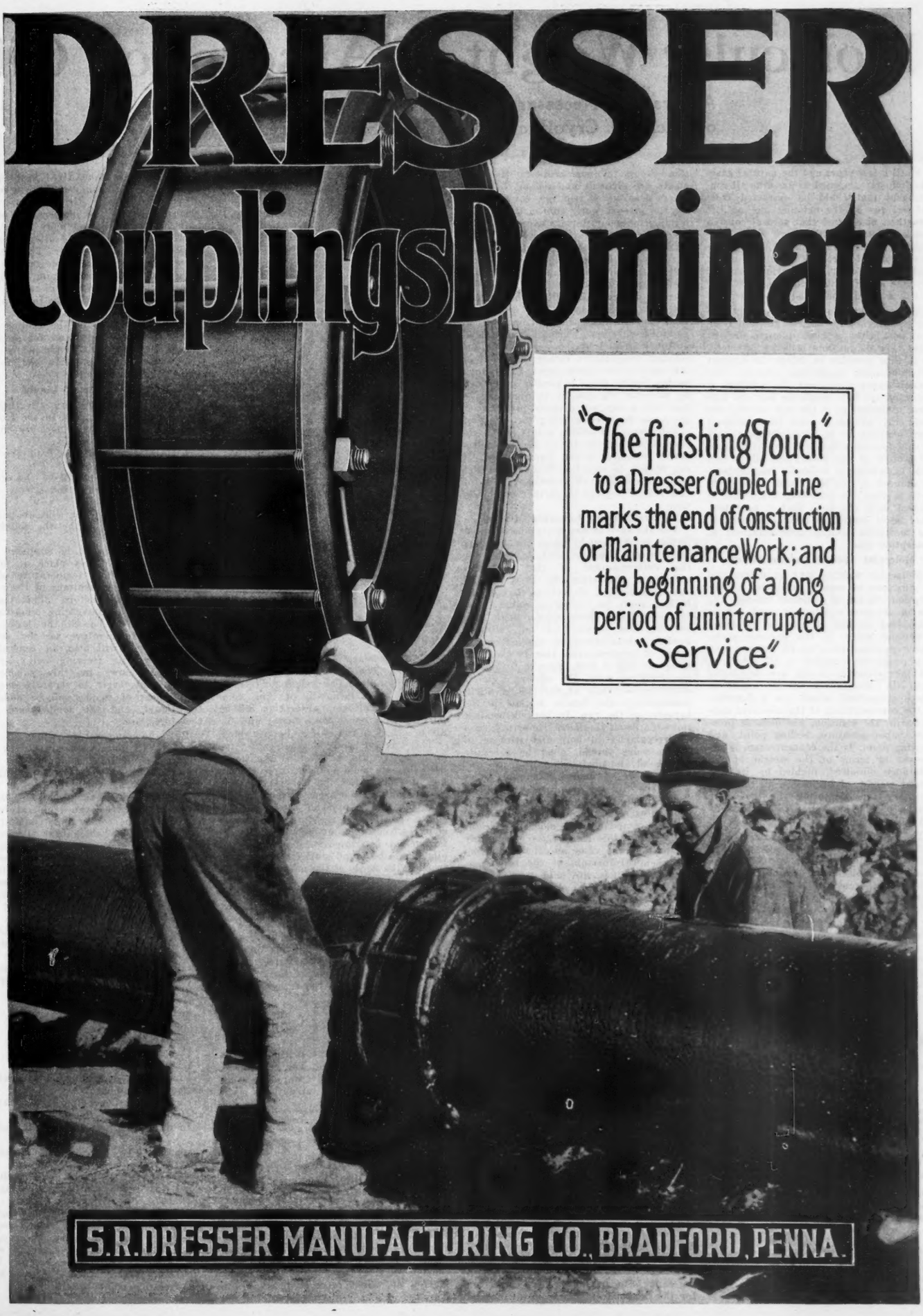
We have managed to get the boat on an even keel under stress of circumstances and we can keep it there if we stick to the determination to adjust our production, not for a few weeks or months, but all the time, to the known and easily calculable demands.

We know from year to year just how much oil will be consumed. If we produce no more than that we will have good times in the industry, have that much more oil in reserve and obey the requirement of the Government for the conservation of one of the nation's irreplaceable assets.

The oil man should remember that the more he produces, be it crude or gasoline, the less he gets for it.

Why produce more oil for less money?

DRESSER Couplings Dominate



Molecular Weight of Absorption Oil

Accuracy Is Necessary to Make Separate Determination of Each Oil. Cryolitic Method Gives Satisfactory Results

By F. L. Kallam[1] and L. J. Coulthurst[2]

Until a few years ago the natural gasoline industry accepted as gasoline all constituents that could be extracted from natural gas by the existing methods. It was then discovered that several constituents of such gasoline were very objectionable for use in blending with straight-run gasoline to produce a finished motor fuel. Consequently, the various natural gasoline specifications now in force have slowly evolved from this knowledge.

The development of the fractional analysis method for natural gas and gasoline now gives a clear picture of just what type of gasoline is being produced. It is thus possible to detect the amount of undesirable compounds present. The manufacturer now faces the problem of knowing just how deeply he may cut into these undesirables in the raw natural gas and still adhere to his final product specifications. It is necessary as a part of this determination to know the molecular weight of the absorption oil in use. This knowledge is decidedly fragmentary, as evinced by the literature of the subject, so that the following discussion is offered with the hope that it may possibly be of service to those interested in the molecular weight determinations of absorption oils.

Molecular Weight Determinations

Molecular weights may be determined by any one of several methods. As absorption oils are of principal interest, the use of Avogado's principle need not be considered because it pertains to determinations made in the gaseous state. There remains then to be utilized certain properties common to all solutions, the magnitude of which are dependent upon the composition of the solutions. These properties, which are a function of the concentration of the dissolved substance in the solution, are osmotic pressure, vapor pressure, boiling point, and freezing point. If the concentration is expressed in terms of the weight of the substance dissolved, divided by its molecular weight, giving moles, all the data necessary for computing the molecular weight of the substance in solution is available.

The difficulties involved in the experimental determination of osmotic pressure prevents its application in the determination of the molecular weights of oils, although in the case of colloids, it is the only recourse.

Raoult's law for vapor pressure lowering states that the vapor pressure of a solution is proportional to the mol-fraction of the solvent present in the solution. Starting with this simple relationship it may be proved that the molecular weight (M) of a substance can be expressed in the following fashion:

$$M = \frac{760\,g.m.}{(P-p)\ (D-d)\ (1{,}000)} \text{ where}$$

g = grams of solute dissolved in 1 liter of solution.
m = molecular weight of solvent in the form of vapor.
P = vapor pressure of the pure solvent, in m.m. Hg.
p = vapor pressure of the solution, in m.m. Hg.
D = density of solution at pressure p.
d = density of vapor at pressure p.

This method has decided advantages where it is desirable to ascertain the change in molecular weight of a substance with temperature when association occurs. Vapor pressure measurements are difficult and tedious to make where accuracy is required, consequently for the present work, this method of determination would involve excessive labor.

Of all the colligative properties, none lend themselves to experimental determination so easily as boiling and freezing points. The ease and accuracy with which thermometric readings may be made, especially differential readings, have made the wide application of such determinations possible. The boiling point method has inherent errors which require special precautions, such as the measuring of the solution temperature rather than that of the vapor or condensed vapor. In as much as the boiling point is greatly influenced by pressure changes, it is necessary to maintain a constant external pressure, at the same time, considering the effect of the difference in boiling points of the various layers of the liquid due to hydrostatic pressure of the liquid above. It can readily be seen that this method also requires considerable technique, and for this reason is given no further consideration.

Freezing-Point Lowering Method

For the sake of simplicity and manipulation it is thought that the freezing point method is the most desirable for the determination of the molecular weights of absorption oils. It is realized that this method, as well as that of the boiling point, is limited in value in so far as they are restricted to a single temperature and, hence, can not, without doubtful assumptions, be applied over a range of temperatures. Due to the fact, however, that a new phase is formed at the freezing point the action is much more regular than at the boiling point, consequently the former method is the superior of the two. In both determinations the usual thermometric errors, such as irregularity in bore and sticking of the mercury thread, must be carefully considered and obviated.

There are of course numerous times when the freezing point method should not be used. In the case of a number of substances, such as organic acids and hydroxy compounds, the molecular weight as found by this method is considerably higher than the value as calculated from the chemical formula of the substance. Such compounds are said to associate, that is, two or more molecules combine to form a larger molecule. Also, it is found that the molar weight as given by the freezing point, or cryoscopic method, can be lower than the value corresponding to the ordinary chemical formula. Such results are obtained with compounds that dissociate or ionize. This phenomenon is found, for example, in the case of all salts, acids and bases in aqueous solutions. Buff, in 1865, showed the molecular volume of unsaturated compounds gave higher values than saturated ones, that is, a correction had to be made for the double bond. The formation of ring compounds results in the decrease of the molecular volume and therefore a lower molecular weight is indicated than would otherwise be expected.

There need be no fear of dissociation in the case of absorption oils dissolved in an organic solvent such as benzene. This we have demonstrated by determining the hydrogen-ion concentration. At no time have we found an absorption oil of H-ion concentration higher than $10^{-6.3}$. Nor is it likely that there will be any evidence of association in the many compounds that constitute these same oils. Especially is there a less likelihood of such being the case in the lighter oils of comparative low and restricted boiling range. The possibility of a correction for the double bond in the paraffins and their corresponding olefins is practically nil. The results of the molecular weight determination of a ring compound is best illustrated by the data curve, Figure 1, on Tetralin.

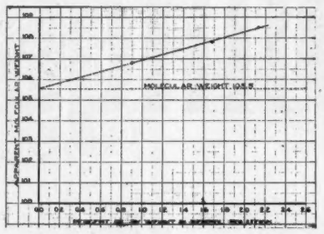
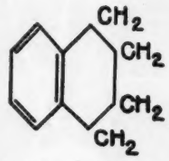


Figure 1—Molecular weight determination of tetralin by freezing-point lowering method.

This substance is of particular interest for it was at one time suggested for use as a substitute for the present grade of absorption oils.

Tetralin, $C_{10}H_{12}$, has the following structure:



The molecular weight by formula is thus 132.1. The cryoscopic method, however, gives a molecular weight for tetralin of 105.5. The influence of ring compounds, in California absorption oils in particular, is not a large factor and for all practical purposes can be neglected.

The freezing point method will give erroneous results, however, if the solute used forms a solid solution or isomorphous mixture with the solvent. It has been found that a benzene solvent crystallizes out pure from an absorption oil solute. In view of the foregoing discussion, the freezing point method of molecular weight determination for absorption oils should be found sufficiently accurate to meet the needs of the natural gasoline industry.

Theory Method

The theory of the freezing-point method depends upon the fact that where w grams of a substance is dissolved in W grams of a solvent, the freezing point of the latter is lowered by d degrees Centigrade. The molar weight of the solute is then determined from the expression:

$$\frac{K\,w}{d\,W}$$

where K is a constant depending only on the solvent employed. The value of K for the commonest solvents used is as given in the following table:

Solvent—	Freezing point °C.	Factor K
Water	0.0	1,850
Acetic acid	17.0	3,900
Benzene	5.4	5,120
Naphthalene	80.1	6,800
Nitrobenzene	5.3	7,050

In order to find the value of d in the above equation, it is necessary to determine the freezing point of the pure solvent and of a solution of known concentration. This determination can be conveniently made in conventional Beckmann apparatus. Here the cooling bath consists of a glass or stoneware vessel, on top of which rests a lid of brass. Through a hole in the center of this lid is a wide glass tube, fixed in place by means of a cork, while through a second off-centered hole a stirrer is passed by means of which the temperature of the bath itself can be kept more uniform. A third opening in the lid allows for the passage of a thermometer. The freezing point tube, which has a side tube, is supported in the central opening by means of a cork or asbestos ring in such a fashion that the wide glass tube forms an air mantel between it and the cooling bath.

The temperature of the cooling bath must not be too low and for very accurate determinations should not be more than 0.5 of a degree below the freezing point of the mixture.

Temperature of Liquid

Considering the factors affecting the temperature of the liquid in the freezing tube, it is seen that they are mainly three in number, namely:

1. Abstraction of heat from the cooling bath.
2. Addition of heat from the outside by conduction through the stirrer, thermometer, etc.
3. Addition of heat (latent heat of fusion) to the liquid by the solidifying solvent.

If, momentarily, it is supposed that no solidification takes place, it is evident that the final temperature of the liquid will be the resultant of the action of the first two factors. This temperature called the converging temperature, will, of course, be all the lower, the lower the temperature of the cooling bath; and it will also, in general, lie below the true freezing point of the liquid. If now, in this supercooled liquid, solids begin to separate out, the latent heat of fusion will be added to the liquid, and the temperature will, therefore, rise.

But the temperature which is now reached will not necessarily be the true freezing point of the liquid, for it is the resultant of two opposing factors, viz: the rate at which the heat is withdrawn (which in turn depends on the difference between the temperature observed and the converging temperature), and the rate at which heat is given to the liquid, which will depend upon the latent heat of fusion and on the velocity of crystallization. Since the velocity of crystallization can be taken as proportional to the degree of supercooling, it can be seen that the final observed temperature will be lower than the true freezing point by an amount directly proportional to the differences between the observed temperature and the converging temperature, and by an amount inversely proportional by this difference, that is:

$$T = t + \frac{k}{C}(t - t_1) \text{ where}$$

T = true freezing point
t = observed freezing point
t_1 = converging temperature
k = constant depending on the rate of abstraction of heat.
C = constant depending on the rate of addition of latent heat.

In order to diminish the value of the correction $\frac{k}{C}(t - t_1)$, the temperature difference $(t - t_1)$ should be made small and when this is done the correction may be neglected.

This is the reason why the temperature of the cooling bath should not be too low. To obtain the accuracy at which it is believed necessary to work, the temperature of the cooling bath should not exceed about 2 degrees below the freezing point of the liquid. For

(Continued on Page 188)

[1]Mechanical engineer in charge of petroleum research, Southwestern Engineering Corp., Los Angeles, Calif.
[2]Chemical engineer, petroleum research department, Southwestern Engineering Corp., Los Angeles, Calif.

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Darst Creek Field Operators Have Plan For Holding Output

By Neil Williams

HOUSTON, Tex., Nov. 19.—A plan, similar to the Winkler plan, for holding the production of the new Darst Creek Field in Guadalupe County within the limits of its market outlet probably will be put into effect within the next week as a result of action taken by a meeting of representatives of the majority of operators in that area at offices of The Texas Company here this afternoon. Although an agreement has not been signed by all the companies, almost general approval was given and now only small technicalities and a few details need to be ironed out before all will agree to go into the plan. F. C. Sealey, assistant manager of production of The Texas Company, was elected chairman of the advisory committee which will have authority to direct the field's curtailment program and as soon as all operators are lined up an umpire will be employed.

Approval of the plan, which was suggested at a similar meeting held the preceding Tuesday, was asked following a very thorough investigation of the Darst Creek situation and the need of some definite action to prevent any possibility of overproduction which has been experienced in other flush fields.

The investigation was made by a committee, consisting of one representative of each of the operators, with John R. Suman, director of the Humble Oil & Refining Co., as chairman, and it was the general opinion that the Winkler plan, with a few alterations to fit the local conditions of Darst Creek, was the most feasible method to limit the daily production. The only important difference in the plan proposed for Darst Creek and that in effect in Winkler County is in the size of the units of operation. Whereas in Winkler County, 40 acres is taken as the unit, at Darst Creek it is 20 acres.

Daily production of the field would be limited to the capacity of the market outlet. Under the proposed plan half of this allowed production of the field will be divided equally among each of the 20-acre units, leaving the other half to be prorated among the units based on the ratio of the daily potential production of each unit.

Market Outlet

Just what constitutes the market outlet of the field has not been determined definitely but, naturally, this will be variable and subject to change at intervals with the increase in transportation facilities and with provision for disposing of the oil. At present the outlet capacity is estimated at between 10,000 and 15,000 bbls. but this is to be determined by the committee. This takes into consideration the two pipe lines which are being laid from the field, one by the Texas Pipe Line Co. and the other by the Humble Pipe Line Co.

Neither one of the pipe lines as yet is in operation, except a small part of the Texas Pipe Line Co.'s line which was laid from the field to loading racks at Sullivan when the field was opened last July. This company now is extending the line from Sullivan to the Rosanky station on the company's trunk line from West Texas to the coast, a distance of 40 miles. This line is 6-inch. Humble Pipe Line Co. virtually has completed a 6 and 8-inch line from the field to the company's system at Luling a distance of 17 miles but no oil has been run.

The small and numerous leaseholds within what is expected to constitute the field, which will necessitate an active drilling program because of numerous offsets required, have made it almost compulsory that operators in the field take steps to restrain any unnecessary drilling and hold the daily output to a point which will not overflow the outlet facilities and endanger the market situation. Potential daily production of Darst Creek is placed at a minimum of from 75,000 to 100,000 bbls.

THE OIL MAN'S CALENDAR

November 20-21—Casper, Wyo., Annual convention, Rocky Mountain Oil and Gas Association. Meeting, American Petroleum Institute, Rocky Mountain Division, Division of Development & Production Engineering. Meeting, Petroleum Section, Rocky Mountain Division, National Safety Council.

November 25—Memphis, Tenn., Tennessee Oil Men's Association, Hotel Peabody.

November 30-December 2—Chicago, meeting A.P.I., General, Technical and Subcommittees, Stevens Hotel.

December 2-5—Chicago, Tenth annual meeting, American Petroleum Institute, Stevens Hotel.

December 4-7—Washington, Convention, American Mining Congress.

December 5-6 — Indianapolis, Meeting Indiana Petroleum Association.

December 11-13—Omaha, Neb., Convention, Nebraska Independent Oil Men's Association, Paxton Hotel.

December 12-13—Washington, 9th annual meeting, Highway Research Board.

December 16-17—Washington, American Pharmaceutical Manufacturers Association, Hotel Washington.

January 4-11—New York National Automobile Show, Grand Central Palace.

January 11-18—Atlantic City, Convention, American Roadbuilders Association.

January 21-24—Detroit, Mich., Annual meeting, Society of Automotive Engineers, Book-Cadillac Hotel.

January 25-February 1—Chicago. National Auto Show, Coliseum.

February 19-21—Columbus, O., Ohio Petroleum Marketers Association, Deshler-Warwick Hotel.

March 19-21—Detroit, Convention, Michigan Oil Men's Association. Statler Hotel.

March 20-22.—Roosevelt Hotel, New Orleans, La., American Association of Petroleum Geologists.

High Spots in Field News

NORTH LOUISIANA-ARKANSAS

Nineteen completions scattered over seven parishes. Arkansas quiet.

CALIFORNIA

California situation greatly improved as result of curtailment program. Drilling operations continued on conservative basis.

GULF COAST

New domes at Black Bayou and Port Barre, La., further proved. Good producer at Humble and deep sand wells at Barbers Hill.

WEST TEXAS

Presidio and Reeves County tests attract notice.
Crane and Upton Counties revive interest.
Possible new pool in Winkler County.

NORTH CENTRAL TEXAS

Well 6½ miles northeast of Menard had 10-bbl. showing and may mean new pool.
Callahan County well flows 200 bbls. in first 15 hours.

OKLAHOMA

I.T.I.O. company's No. 1 Fuzzell, Oklahoma City, produces 42,982 bbls. on 24-hour test.
Water appears in several wells in Oklahoma City Field.

KANSAS

Derby well in Voshell Pool flows 1,334 bbls. in 24 hours.
Empire company gets second well in Voshell Pool, McPherson County, estimated 1,500 bbls.

ROCKY MOUNTAIN AREA

Sulphur water in Lea County, New Mexico, tests.
More than usual number of completions in Wyoming.
Berthoud Dome, Colorado, to be developed.

SOUTHWEST TEXAS

Southern Bexar County, 4 miles east of Somerset Field and 10 miles south of San Antonio, bails 8 bbls., a few feet in Edwards lime. May open first Edwards lime pool in Bexar County.

Magnolia company's well in Darst Creek Field swabs and flows at rate of 400 bbls., 2½ miles southwest from discovery well. Nearest producer 2½ miles northeast.

Grayburg company's well several miles southeast of discovery at Darst Creek showed considerable oil and looks like new field.

United North & South company's well, Darst Creek, looks like producer, widening field at that point.

Late News from the Field

KANSAS

George P. Dickey and others' No. 1 Robbins, SE cor. Section 20-28-1w, Sedgwick County, in Robbins Pool, made 200 bbls. from the chat at 3,100-04 feet. It is located between two dry holes.

Derby Oil Co.'s No. 1 Voshell, NE cor. SE Section 9-21-3w, McPherson County. flowed 1,278 bbls. on the gauge ending November 17 at 7 a.m.

Empire Oil & Refining Co.'s No. 1 Voshell, NE cor. SE NE Section 9-21-3w, McPherson County, swabbed 460 bbls. in 10 hours, from the Wilcox sand at 3.305-08 feet, on the gauge of November 17.

WEST TEXAS

FORT WORTH, Tex., Nov. 19.—Big Lake Oil Co.'s No. 4-C University, located 1,120 feet from the north and 1,096 feet from the east lines of Section 1, Block 2, Reagan County, fished out tools and is drilling ahead. It flowed at rate of 250 bbls. daily from 8,220 feet before the well was killed to allow fishing of tools.

Harrison and Cromwell's No. 1 White and Baker, Section 42, Block 11, H.&S.N. Survey, Pecos County, had good showing of oil from 827-47 feet.

DARST CREEK FIELD

SAN ANTONIO, Tex., Nov. 19.—Magnolia Petroleum Co.'s No. 1 Rand Miller in Darst Creek Field topped the Edwards lime at 2,600 feet and drilled 10 feet in Sunday and is swabbing and flowing at the rate of 400 bbls. of oil daily. The discovery well of the field is 2½ miles southwest and the nearest producer northeast is Magnolia's No. 1 Appling, 2½ miles away. Grayburg Oil Co.'s No. 1 C. M. Wells, located off the Darst Creek structure, several miles southeast of Darst Creek discovery well, at 3,740 feet on drill stem test last night showed considerable oil and looks very favorable to the opening of a new field. United North & South Development Co.'s No. 1 Dix in Darst Creek Field with an elevation of 492 feet topped the Edwards lime at 2,540 feet, which is high and looks like a producer. It widens the field at that point. Gulf Production Co. is moving in rig to offset it.

NORTH TEXAS

FORT WORTH, Tex., Nov. 19.—Menard County Barnett and Drake's No. 1 Callan, SW Section 1, B.S.&F. Survey, 6½ miles northeast of Menard, encountered an estimated 10-bbl. showing of oil at 1,132 feet. The well was shut down at 1,152 feet. This is one of the best showings encountered in the county and may possibly mean the opening of a pool in this area although other tests having good showings have failed to come through as producers. In Callahan County, Campbell and others' No. 1 Jackson, NW Section 20, T.P.R.R. Survey, north central part of county, flowed 200 bbls. the first 15 hours while standing at 1,125 feet. The oil sand was encountered at 1,124 feet.

MICHIGAN

MUSKEGON, Mich., Nov. 19.—Average daily production of the Muskegon Field increased about 400 bbls. for the week ending Monday, November 18, at 7 a. m., while the Mount Pleasant Field settled back to about 9,000 bbls. a day or 500 bbls. less than was reported last week. Total production for the three Michigan fields, including 200 bbls. of Traverse daily at Saginaw, 100 bbls. at Mount Pleasant and 620 in the Muskegon Field, was 16,720 bbls. a day for the week. Muskegon Dundee production was 6,800 bbls. a day.

OKLAHOMA

Sinclair Oil & Gas Co.'s No. 1 Stewart, C NE SW Section 33-27-16w, Woods

(Continued on Page 166)

A.P.I. WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks—for the week ending November 16 follows:

	(1)	(2)	(3)	(4)
East Coast	100.0	3,530,100	4,627,000	8,740,000
Appalachian	90.0	558,400	839,000	768,000
Indiana, Illinois, Kentucky	98.1	2,165,200	4,512,000	3,776,000
Oklahoma, Kansas, Missouri	87.5	2,101,400	2,464,000	3,939,000
Texas	89.9	3,991,500	5,382,000	14,262,000
Louisiana and Arkansas	95.1	1,258,100	1,692,000	5,100,000
Rocky Mountain	92.9	410,800	1,737,000	1,007,000
California	99.3	4,575,700	14,045,000	109,520,000
Total United States	94.9	18,591,200	35,298,000	147,112,000
Texas Gulf Coast	100.0	3,143,900	4,546,000	10,954,000
Louisiana Gulf Coast	100.0	956,200	1,464,000	4,328,000

(1) Per cent refinery capacity represented. (2) Crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.

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I.T.I.O.'s Record Breaking Producer

No. 1 T. Fuzzell, in Oklahoma City Pool, Produced 42,982 Bbls. on a 24-Hour Test, and Is Then Shut in for 30 Days

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

All individual well producing records in Oklahoma were broken last week when the Indian Territory Illuminating Oil Co.'s No. 1 Thomas Fuzzell, Consolidated made 42,982 bbls. in 24 hours on a production test ending at noon November 16. The well is located in the SW cor. SE SE, Section 13-11-3w, Oklahoma City Pool, and was producing from the Arbuckle lime at a total depth of 6,542 feet. When it was first opened at 7 a.m. November 15 it made 1,820 bbls. in the stock tanks after flowing an hour and 20 minutes. It was then shut in on account of a leak in one of the lead lines. It was reopened at noon the same day and in three hours made 6,220 bbls. It has been shut in for the 30-day period.

Records of other big producing wells in the State show the Sinclair Oil & Gas Co.'s No. 27 Hartley, in Section 18-22-3, Garfield County, in the Garber Pool, made 25,865 bbls. the first 24 hours. It was the largest producer until the new well at Oklahoma City Pool surpassed its record.

Coline Oil Co.'s No. 2 Olds, C NE NW, Section 24-11-3w, was drilled in the pay horizon last week. It blew in with a large flow and the first hour it made 231 bbls. It is producing from a sand at 6,310-48 feet. The sand was discovered by the Coline Oil Co.'s No. 1 Olds, several months ago. Two other wells are producing from the same sand, Hall & Briscoe's No. 1 Childs, and Coline Oil Co.'s No. 3 Olds, on the same lease. The new Coline well made 3,354 bbls. the first 16½ hours.

The State's potential production is estimated at 850,000 bbls. daily. With proration in effect in the flush areas of the State its production will be kept within the requirements of the pipe line companies, which are estimated to be 650,000 bbls.

The State's production for the week ending November 16 was 645,000 bbls., an increase of 28,000 bbls. over last week's figures.

Greater Seminole Production

The production of the various pools in the Greater Seminole area for the week ending November 13, were as follows:

Pool—	Wells	Bbls.
Little River	346	47,089
East Little River	42	23,119
Carr City	58	10,421
Maud	135	9,818
Mission	110	16,913
Bowlegs	295	25,995
Earlsboro	295	37,714
East Earlsboro	48	26,421
Seminole	273	26,374
East Seminole	28	4,241
Searight	83	10,235
St. Louis	433	49,405
Asher	23	4,616
Sasakwa	29	8,309
Allen	230	20,314
Total	2,428	319,984

Oklahoma City Developments

The Oklahoma City Pool has been active the last week and has completed several wells. The producing area was extended a half a mile northeast when the Mid-Kansas Oil & Gas Co.'s No. 1 Browning, SW cor. NW Section 18-11-2w, blew in flowing from a total depth of 6,548 feet. The first 14 hours the well flowed 6,572 bbls. and was shut in on account of lack of storage tanks. At the time the well was shut in it was estimated to be averaging 500 bbls. an hour. It will be shut in for the 30-day period as soon as it has produced the full 24 hours.

Many predict the south end of the field will yield big production from the sand horizon above the limestone pay. Sinclair Oil & Gas Co.'s No. 2 Kinter, SW cor. SE Section 30-11-2w, has cored a showing of oil in sand at 6,324-35 feet. Casing has been landed above sand and a production test will be made. Same company's No. 1 School Land, NE cor. Section 36-11-3w, had sand at 6,346-75 feet, with a showing of oil. Skelly Oil Co.'s No. 1 Hobbs, NW cor. NE Section 31-11-2w, a south offset to the Sinclair Oil & Gas Co.'s No. 2 Kinter, was drilling at 6,335 feet on November 15. Mid-Kansas Oil & Gas Co.'s No. 1 Mollman, SE cor. Section 23-11-3w, on the southwest edge of the pool, has cored an oil sand at 6,374-6,400 feet. This semiwildcat is preparing to land casing at 6,400 feet.

Indian Territory Illuminating Oil Co.'s No. 1 Henning, NE cor. SW SE Section 24-11-3w, gauged 2,243 bbls. of oil and 7,992 bbls. of water, at 7 a.m. November 15. It is making more water than any other well in the field at this time.

The discovery well owned by the Indian Territory Illuminating Oil Co., its No. 1 fee, has been drilled deeper to a total depth of 6,624 feet, where it found a sand and increased its oil production from 1,737 bbls. to 1,921 bbls. The gauge was on November 15. Shell Petroleum Corp.'s No. 2 Petty, SE cor. NE Section 30-11-2w, has been plugged back to 6,687 feet and was swabbing water on a production test. It may be plugged back again. Same company's No. 3, NE cor. Section 30-11-2w, was fishing at 6,325 feet, the total depth.

Test of "B" Wells

The production of the "A" wells in the Oklahoma City Pool for the gauge of November 15, at 7 a. m., amounted to 80,094 bbls. It is an increase over the previous day's gauge when the field produced 38,967 bbls. The gauge by companies and leases for November 15 were as follow:

Company, farm—	Bbls.
Coline, No. 2 Olds	3,354
I. T. I. O., No. 2 S. Bodine	59
I. T. I. O., No. 1 B. Anderson	5,267
I. T. I. O., No. 1 Fuzzell	15,043
I. T. I. O., No. 1 Thomas Fuzzell	*34,511
I. T. I. O., No. 1 Henning	2,243
I. T. I. O., No. 1 fee	1,770
I. T. I. O., No. 1 Trosper	1,323
Mid-Kansas, No. 2 Fortson	1,748
Prairie, No. 1 Hiddleston	4,886
Sinclair, No. 1 Kinter	365
Sinclair, No. 1 Stamper	245
Sinclair, No. 2 Stamper	510
Slick, No. 1 Glidden	8,771
Total	80,094

*20 hours.

Test of 19 Wells

The daily average production of the Oklahoma City Pool for the week ending November 13 amounted to 41,617 bbls. The previous week's production was 64,468 bbls. All class "A" wells were opened for production November 10, and produced until November 15, inclusive. The daily average gauges for the week ending November 13 were as follows:

Company, farm—	Bbls.
Coline, Olds	3,226
I. T. I. O., Trosper Park	2,685
I. T. I. O., Bodine-Anderson	off
I. T. I. O., A. Bodine	1,504
I. T. I. O., S. Bodine	2,203
I. T. I. O., Button	3,151
I. T. I. O., Fuzzell	6,344
I. T. I. O., Thomas Fuzzell	90
I. T. I. O., Henning	22
I. T. I. O., Johnson	5
I. T. I. O., fee	1,609
I. T. I. O., Trosper	472
I. T. I. O., Watters	off
Mid-Kansas, Fortson	2,461
Mid-Kansas, Trosper	260
Prairie, Hiddleston	1,956
Hall & Briscoe, Childs	5,301
Shell, Petty	6,269
Sinclair, Kinter	219
Sinclair, Stomper	835
Wirt Franklin, Lowery	4,005
Total	41,617

Developments in Seminole

Daily average production of the Seminole Field for the seven days ending November 13, showed an increase of 3,500 bbls. daily. The increase in production is accounted for by the operators in that area producing large quantities of oil during the first part of the month. The daily average production of the Seminole Field was 237,340 bbls. from 1,713 wells, for the week ending November 13.

East Little River production declined about 700 bbls. from the previous week's figures. One new well was added to the pool, the Mid-Continent Petroleum Corp.'s No. 13 Smith, a twin to No. 12, in the SE cor. NW SE, Section 5-7-7. It found production in the Cromwell sand at 3,177-3,200 feet, and flowed 2,680 bbls. the first 24 hours. It has been shut in by agreement with the other operators in the area and no offsets will be started for an indefinite period. This well is the first commercial producer from the Cromwell horizon in the East Little River area. The production in the Little River Pool is 750 bbls. higher than the previous weeks. Three new tests now drilling are expected to reach the sand next week when the pool is expected to show considerable increase.

East Earlsboro Pool had two new producers last week, the pool, however, shows a small decline from the previous week's daily gauges. Mid-Continent Petroleum Corp.'s No. 1 McDaniels, SE cor. SW, Section 7-9-6, was completed in the Wilcox sand at 4,275-87 feet, and made 550 bbls. the first 24 hours by swabbing. The well was later shot with 10 quarts and swabbed 590 bbls. of oil and 50 bbls. of water. The pool also has 10 other tests shut down that have reached the Wilcox sand horizon and are awaiting the time limit to drill in.

Maud Pool shows a small decline which amounts to 600 bbls. daily in the Misener sand area. No new wells were added to the pool last week, and it is not likely that any will be completed for several weeks.

Continental Oil Co.'s No. 1 Maguire, NE cor. SE, Section 24-9-5, has landed the 6-inch casing at 4,092 feet, in the Viola lime and is shut down waiting on cement. Some geologists are of the opinion that this test may make a producer as it is considered to be running on the structure about the same as other tests in the C, Section 19-9-6, which is to the east.

Production in the St. Louis Pool continues to decline, in spite of the fact that three new producers were added to the area. The water encroachment in practically all the wells now producing from the Simpson horizon and the natural decline of wells in other horizons, together with proration has caused most of the decrease. The pool averaged 49,405 bbls. from 433 wells daily for the week ending November 13.

The Asher Pool has had no new production and remained almost stationary. The decline in production amounted to only 580 bbls. for the week ending November 13. The pool averaged 4,615 bbls. a day from 23 wells.

The Sasakwa Pool shows a big decline from the previous week. Proration is now being worked successfully in that area. The Pure Oil Co.'s No. 2 Bates, in Section 13-6-7, a new well, had an initial

(Continued on Page 84)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location— Remarks:

Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w ..... Shut down 1,232 ft.

J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w.. Drlg. 4,360 ft.

BECKHAM COUNTY

Kay and others' No. 1 Martin, C E half E half NW Sec. 32-8-24w ..... Drlg. 1,986-90 ft.; bailing water.

Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Shut down 2,402 ft.

Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w ..... Drlg. 1,617 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ..... Spudded and shut down.

Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 12-19-10w ..... Shut down 2,935 ft.

CADDO COUNTY

Abernathy & Brown's No. 1 Horton, SE cor. Sec. 8-6-13w. Shut down 535 ft.

W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1 ..... Rig.

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w ..... Shut down 3,130 ft.

Phillips Pet. and T. B. Slick's No. 1 Sudick, NE cor. NE Sec. 8-10-2w ..... Drlg. on iron 7,425 ft.

COAL COUNTY

W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e .... Shut down 1,285 ft.

McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8 ..... Abandoned 3,015 ft.

E. W. Whitney's No. 1 Brown, C SE NE Sec. 10-2-8 .... Abandoned 202 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w.. Shut down 4,055 ft.

CREEK COUNTY

Carter Oil Co. et al's No. 1 Clinton, SW NW Sec. 12-16-9.. Drlg. 1,150 ft.

GARFIELD COUNTY

Continental and Barnsdall's No. 1 Brown, CNL SW Sec. 10-20-4w ..... Location.

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w ..... Underreaming 5-in. csg. 5,566 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w... Spudded and shut down.

J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w ..... Rig.

GRANT COUNTY

Gypsy Oil Co.'s No. 1 Belderbeck, C SE SE Sec. 27-28-7w. Drlg. 3,618 ft.

Bailey's No. 1 Stover, C SW SE Sec. 20-27-5w ..... Rig on ground.

Baucher et al's No. 1 Deadman, SW SE Sec. 12-28-4w.. Drlg. 3,961 ft.

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w ..... Shut down 5,640 ft.

Otstot's No. 1 Tabor, C NE NE SE Sec. 23-26-3w ..... Drlg. 750 ft.

GREER COUNTY

Helmerick & Payne's No. 1 Henck, NW cor. Sec. 23-6-24w. Drlg. 2,020 ft.

I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w ..... Straightreaming 1,902 ft.

(Continued on Page 101)

Concerning PARACHUTES *and* INJECTORS

THE aviator uses great care in selecting his parachute for he wants to feel certain that it will function properly when it is necessary to "go over the side."

Likewise, when the production superintendent sends steam rigs into remote locations, he is careful to select equipment which he knows will operate consistently and economically. Mechanical failures result in expensive delays.

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PENBERTHY PRODUCTS

McPherson County Adds Importance

Derby Well in Voshell Pool Flowed 1,334 Bbls. in 24 Hours. Area Will Be Prorated and Drilling Curtailed

By W. A. Spinney
Staff Correspondent, Kansas Fields

The Derby Oil & Refining Corp.'s No. 1 Voshell, NE cor. SE, Section 9-21-3w, McPherson County, Kansas, when opened last week, made 1,334 bbls. the first 24 hours, flowing naturally. It is the largest producer in the State at this time. The well exceeds the estimates by more than 300 bbls. a day. The production test ended at 7 a.m. November 16. The well had been pinched in to 50 bbls. daily for several weeks prior to this test. Due to the area being under proration the Derby Oil & Refining Corp. will not start any other tests on this lease until after January 1, 1930. Two east offsets will be started, one by the Sinclair Oil & Gas Co. in the SW cor. NW, Section 22-21-3w, and the other by the Prairie Oil & Gas Co. and Slick, Pryor & Lockhart, in the NW cor. SW, Section 22-21-3w.

A new plan for prorating the Voshell Pool, in McPherson County, suggested by the Kansas proration committee has been accepted. The plan had been accepted by the Derby organization, which has the only large producer in that area in the Wilcox sand. It has been approved by other major oil companies and put in effect November 15. The new plan provides the Derby organization be permitted to produce its well wide open from November 15 to December 20, which is 35 days, and then it will be pinched in to 50 bbls. daily until January 15. This method of operation gives the Derby Oil & Refining Corp. more liberal discovery rights. Other operators in the area will be permitted to complete their wells and produce them from three to five days wide open, after which the wells must be pinched in to 50 bbls. daily until January 15. The committee, which consists of T. C. Johnson, state umpire; George Bruce, vice president of Aladdin Petroleum Corp.; J. Garfield Buell, president of Bu-Vi-Bar Petroleum Corp.; and Ralph Pryor, vice president of Slick, Pryor & Lockhart, Inc., has called another meeting on December 10 to decide what policy will be pursued after January 15. A. L. Derby, president of Derby Oil & Refining Corp., was a member of the proration committee, but owing to the fact that the Voshell Pool was being prorated and his company was heavily interested, he resigned.

Prairie Oil & Gas Co. moved in a rig for a test to offset the McBride, Inc., well in the Voshell Pool, several weeks ago. The Prairie company has decided not to drill this test until after January 15, 1930. It is in accordance with the Prairie Oil & Gas Co.'s policy of cooperating with the proration plans now being in force in other flush areas of the State.

The proration agreement also includes the new test well of Slick, Pryor & Lockhart's No. 1 Grattan, NE cor. NW NW, Section 34-20-3w, McPherson County, 3 miles north of the discovery well. It produced around 25 bbls. an hour when drilled in, but it was pinched in to 200 bbls. daily, from sand at 3,100-08 feet.

Empire Oil & Refining Co.'s No. 1 Voshell, NE cor. SE NE, Section 9-21-3w, a quarter section south of the discovery well, had top of the Viola lime at 3,263-78 feet, where it filled up 1,500 feet in 2 hours. It was being drilled to the Wilcox sand horizon from which the Derby Oil & Refining Corp. well is producing. This test is located between the Derby producer and the Ted Washabaugh's discovery well, now owned by McBride, Inc.

The Darby Petroleum Co. recently leased a 40-acre tract from the McPherson College, 1½ miles south of the Ritz Pool, in McPherson County. A test well will be drilled on the lease at once.

Gas Field in Stevens County

A gas field that gives promise of supplying a large number of towns in southern Kansas with fuel, is located in central Stevens County. These gas wells have been completed near Hugoton, the county seat. Two gas wells have been completed to date and several other tests are now drilling in that vicinity. The two gas wells have a combined open flow of approximately 35,000,000 feet daily, and are providing gas for Elkhart, Rolls and Hugoton. A new pipe line is under construction to supply gas to Dodge City. The producing wells are located, one in Section 10-32-38w, 8 miles northwest of Hugoton, the other in Section 6-34-37w, about 5 miles southwest of Hugoton.

The drilling tests consist of Trees Oil Co.'s No. 1 Thompson, C NE SW, Section 3-35-38w, which is drilling at 2,300 feet, and McKenna and others' No. 1 in Section 29-33-36w, was drilling at 1,400 feet. Both of these reports were as of November 15.

Greenwood County

Three wells were completed in Greenwood County. Houston-Oklahoma Oil Co.'s No. 6 Hout, CEL SW SW, Section 11-24-12, located 2½ miles southwest of Virgil, was completed for 70 bbls. in the pay horizon at 1,720-31 feet, after a 40-quart shot. Sheedy and others' No. 1 Sharp, NE cor. NW, Section 5-24-13, a mile north of Virgil, made 30 bbls. It was completed in sand at 1,617-30 feet, total depth 1,636 feet. The third well a mile west of Virgil, Walton Oil Co.'s No. 1 Barnes, SW cor. NW NW, Section 7-24-13, made 25 bbls. from sand at 1,638-54 feet, after a 60-quart shot.

Russell County

The third test completed in the Sellans Pool in Russell County, was Prairie Oil & Gas Co.'s No. 2 Sellans, in Section 36-15-13w. It was estimated to be making 250 bbls. a day at 3,356 feet. This test indicates the area may be underlain with a large deposit of crude petroleum, and with further drilling a major sized pool may be developed.

Sumner County

Continental Oil Co.'s No. 2 Padgett, in Section 23-34-2, Sumner County, was still shut down while the crew is laying flow lines and erecting stock tanks. It had oil at 3,508-10 feet. The oil was standing about 2,000 feet in the hole when it was shut down to wait for tankage. The test will be drilled deeper into the chat. Derby Oil Co.'s No. 1 Norrish, in Section 33-34-2, has small showing of oil at a total depth of 3,486 feet. Other producers recently completed in that area are reported to be holding their production near the initial output.

Phillips Petroleum Co. is completing its second well in the Shutts Pool, in Ellis County, which it discovered about a year ago. This second well extends the production a quarter mile to the southwest. It is No. 2 Shutts, SW cor. NE, Section 5-12-17w, Ellis County. Pay horizon was found at 3,630 feet, where the hole filled up 1,200 feet with oil in three hours. It will be given a swabbing test. Some estimate it a bigger well than No. 1 Shutts was, which made 150 bbls.

Sedgwick Developments

Dixie Oil Co. is building a new rig for its test in the Greenwich area. It is No. 1 Foulston, SW cor. NW, Section 11-26-2, Sedgwick County, located a half a mile north of the Shell Petroleum Corp.'s No. 1 Erdwein, a new producer in the same section which had been swabbing 1,150 bbls. daily, but it is now pinched to 100 bbls. daily on account of the proration.

The Texas Company has a dry hole in the Robbins Pool, south of Wichita. It is No. 1 Robbins, in Section 21-28-1, Sedgwick County, and was dry in Siliceous lime at 3,542 feet.

Two more producers were added to the Valley Center Pool last week. Bu-Vi-Bar Petroleum Corp. and others' No. 2 Wright swabbed 245 bbls. the first 12 hours from pay at 3,363-67 feet. It is located in the NE cor. NW NE, Section 12-26-1w. Same company's No. 5 Reed, SW cor. SE, Section 1-26-1w, swabbed 570 bbls. in 20 hours from 3,355-59 feet. No. 6 Reed, in the same section, is still fishing in the oil formation at a total depth of 3,360 feet.

Reno County, which is between the Ellsworth and Abilene Arches, is being tested by several wildcats. Gypsy Oil Co.'s No. 1 Hudson, SE cor. NE, Section 27-24-10w, was drilling at 2,450 feet, November 16. It is an important test from a geologcal standpoint as it is being drilled on what is considered a favorable structure. Another wildcat test in the same county that found a showing of oil was Wilson and others' No. 1 McPhaeters, C S half NW, Section 22-26-8w. It had sand at 2,290-98 feet, with a small show of oil. The test was drilling at 2,520 feet, November 16. It is located on a magnetometer-surveyed block and is about 12 miles south of the Skelly Oil Co.'s wildcat producer which has been making around 30 bbls. daily for the last year from the 3,000-foot horizon.

Empire Oil & Refining Co.'s No. 2 Marshall, NW cor. NE SE, Section 15-27-6, Butler County, was being drilled deeper after finding the Bartlesville sand horizon dry. It will be carried to the Wilcox sand horizon in hopes of finding a paying well. Two other tests in the vicinity had showings of oil in the Wilcox sand.

National Refining Co.'s No. 2 Guinn, SW cor. NE NW, Section 2-25-5, Butler County, is also being drilled to the deep horizon in hopes of locating a new pay sand. It was drilling at 700 feet on November 16.

Butler County

Patton & Empire Oil & Refining Co.'s No. 1 A. Marshall, C SE SW Section 11-27-5, is a rig.

Coffey County

Frank Young and others' No. 1 Levering, SE cor. NW Section 11-23-14, has been abandoned at 1,625 feet. Shaffer Oil & Refining Co.'s No. 1 Leavering, CSL SE Section 12-23-14, was drilling at 1,695.

Cowley County

Binkley & Crow's No. 1 Power, C SE SW Section 9-32-5, made 225,000 feet of gas at 720-29 feet. A. D. Krow's No. 3 Powers, SW cor. NW Section 9-32-5, is building a rig. Same company's No. 1 Elrod, C NE SW Section 4-32-5, is a location. Same company's No. 1 Elrod, C NE SW Section 4-32-5, is a location. Same company's No. 1 McEwen, C NW SE Section 4-32-5, is also a location. Century Oil & Gas Co.'s No. 1 Cavit, NE cor. SW SW Section 19-32-5, is a rig on the ground. Lewis Production Co.'s No. 1 Fitzgerald, NW cor. NE SW Section 20-31-6, was rigging up. J. A. Hull & Co.'s No. 16 Wallace, NW cor. NE SE Section 24-32-4, is building a rig.

Marion County

American Oil & Refining Co.'s No. 1 Urie, SW cor. NW Section 10-17-3, is dry and abandoned at 3,105 feet.

McPherson County

Slick, Pryor & Lockhart is moving in a rig for No. 1 Stucky, SE cor. SW SW Section 27-20-3w. Gypsy Oil is building a rig for No. 1 Kinney, NE cor, NW SW Section 34-20-3w. Helmerich & Payne's No. 1 Klassen, SE cor. NE NE Section

(Continued on Page 144)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

BARBER COUNTY

Company, farm and location—	Remarks:
Allison & Fitzwilliams' No. 1 Kimberg, NW SE Sec 2-30-12w	Location.
Rolland & Skelly Oil Co.'s No. 1 Pickens, C NE NW NE Sec. 27-30-14w	Plug back to 4,727-30 ft. to test: total depth 4,735 ft.; abandoned.
Skelly Oil Co.'s No. 1 Temple Ranch, Sec. 13-34-15w	Shut down 4,410 ft.
Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w	Shut down 3,260 ft.

BARTON COUNTY

Prairie's No. 1 Davidson, NW SE Sec. 4-16-11w	Location.
Allison & Fitzwilliams' No. 1 Brodie, NE cor. Sec. 19-16-12w	Drlg. 2,160 ft.
Slick et al's No. 1 Sweeney, SW NE Sec. 23-17-11w	Drlg. 810 ft.
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.

BUTLER COUNTY

Lario O. & G. Co.'s No. 1 Hill, SW SE Sec. 1-27-4	Rig.
Lario O. & G. Co.'s No. 1 Miller, NE SE NE Sec. 36-26-3	Drlg. 400 ft.
Martin et al's No. 1 Flanigan, C SW SE SW Sec. 29-27-3	Shut down 50 ft.
Sinclair Oil & Gas' No. 1 Johnson, NE cor. Sec. 16-26-3	Drlg. 3,000 ft.
Stroub & Dutton's No. 1 Kirby, SE SW Sec. 12-28-3	Drlg. 710 ft.
Valley Osage's No. 1 Sirs, SE cor. Sec. 34-23-3	Drlg. 2,600 ft.

CHASE COUNTY

E. W. Marland, Inc.'s No. 1 Altemus, SE NE Sec. 33-18-6	Rig.

CLAY COUNTY

Chrisler et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Rig.
Derby Oil Co.'s No. 1 Meimueller, C NW SW Sec. 9-10-3e	Drlg. 2,610 ft.
Skow Bros.' No. 1 Strud, SW SE Sec. 16-9-4	Shut down 2,510 ft.

COWLEY COUNTY

Prairie's No. 1 Leighty No. 1 Ball, SW SE Sec. 4-30-5	Drlg. 250 ft.
A. M. Landon's No. 1 Wheeler, C SW NW SE Sec. 24-30-4	Drlg. 1,765 ft.
Milton & Mead's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 1,525 ft.
Roth & Farrout's No. 1 Thompson, NE SE Sec. 31-31-8	Drlg. 325 ft.
Shawver et al's No. 1 Oldham, NW SE Sec. 23-32-3	Drlg. 2,440 ft.

DICKINSON COUNTY

Walton Oil Co.'s No. 1 Neiman, C SE SW Sec. 13-14-2	Drlg. 2,960 ft.
Prairie's No. 1 Lachard, C NW SW NE Sec. 12-16-2	Rig.
Hiatt & Durham's No. 1 Wendt, NW cor. Sec. 17-16-2	Spudding.
Kruger et al's No. 1 Diche, C NW NE NE Sec. 17-13-4	Drlg. 1,700 ft.

DOUGLAS COUNTY

Jenkins & Scott's No. 1 Haden, SE NW Sec. 10-12-17	Drlg. 550 ft.

EDWARDS COUNTY

Skelly's No. 1 Johnson, NE SW Sec. 21-25-17w	Rig.
Barnsdal Oil's No. 1 McCarty, NW NE Sec. 31-25-17w	Rig.

(Continued on Page 105)

ATWOOD Oil and Gas Equipment

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VALVES.....WELDED PIPING.....FITTINGS

Good Wells on New Louisiana Domes

Further Proving Up of Black Bayou and Port Barre. Prolific Producer at Humble. Deep Sand Wells at Barbers Hill

By Nell Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Nov. 18.—Further proving up of production at Black Bayou, Cameron Parish, Louisiana, and at Port Barre, St. Landry Parish, by the bringing in of good wells on each of these new salt domes, the addition of another prolific producer at Humble, and the completion of two more deep sand wells on the east side of Barbers Hill were among the developments on the Gulf Coast the past week. Daily average production of coastal fields continued to climb during the week because of flush producing areas, reaching an output above 190,000 bbls. daily, a new peak since the height of the Spindletop deep sand boom.

At Black Bayou, Shell Petroleum Corp.'s No. 12 Watkins, the first test drilled on the south side of dome, which has been opened for production only this year, was brought in early in the week flowing 921 bbls. of pipe line oil on a five-eighths-inch choke early in the week. Since then the well has been increasing in flow slightly. The oil tests 24.9 gravity and is from a sand at 5,206-21 feet.

This well is on the opposite side of the dome from No. 6 Watkins, the only other deep producer completed. That well, which flowed initially at 60 bbls., 75 per cent b.s. and water an hour, since has stopped flowing and has been deepened from 4,727 feet, the former producing level, to 4,911 feet, where another sand has been found and which will be tested. The only other production at Black Bayou are two shallow caprock pumpers, but these have been pumping steadily since completion several months ago. A total of 13 tests has been drilled at Black Bayou, all of which have been shallow caprock tests except Nos. 6 and 12.

Gulf Refining Co.'s No. 2 Gaudet at Port Barre, St. Landry Parish, has been shut in for storage since its completion early in the week. It flowed at the rate of an estimated 2,000 bbls. of pipe line oil on a five-eighths-inch choke daily while opened, the oil coming from a sand at 3,410 feet. This is the third producer completed on that dome although the first of the three was very short-lived and later was deepened to salt and abandoned.

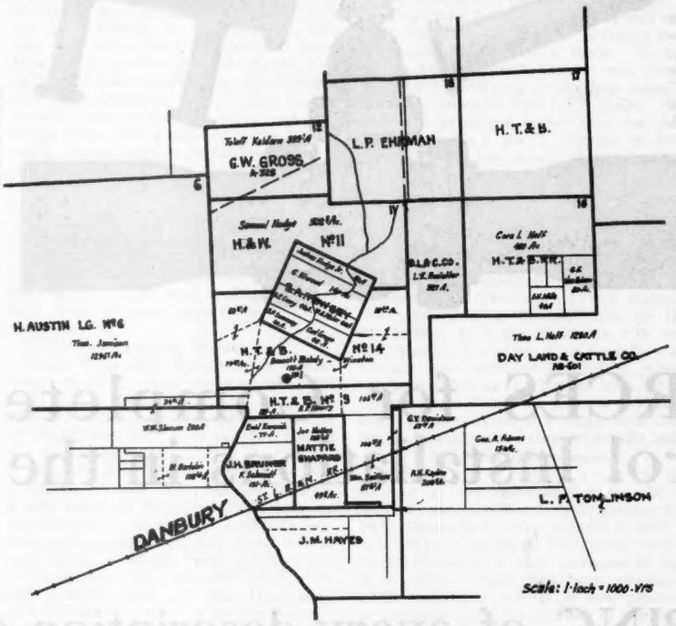
Humble Deep Sands

The deep sands on the south side of Humble which have yielded a series of prolific producers recently sending Gulf Coast production figures to new highs added two more wells during the week. The completion of Humble Oil & Refining Co.'s No. 5 Williams, flowing initially 1,000 bbls. of fluid, 50 per cent oil, early in the week was followed Friday by The Texas Company's No. 270 Landslide making 150 bbls. of oil an hour on two five-eighths-inch chokes from a total depth of 5,140 feet. The oil in the latter is slightly higher gravity than in previous wells, testing 45.4 degrees.

The Texas Company has started two more deep tests on the Dunman tract, approximately 1,600 feet to the southwest of the main field, on which two weeks ago a well flowing 8,130 bbls. was brought in. That well, the best so far in the field, and which for several hours flowed 500 bbls. an hour, has been holding up along with other recent wells, which accounts for the increase in Humble's daily production.

Two failures at Humble were South Texas Petroleum Co.'s No. 1 Lee on the south side and The Texas Company's No. 23 House on the north side. The latter drilled into salt at 5,072 feet and the former was quit in heavy shale at 4,687 feet. This is an offset to Continental Oil Co.'s No. 1 Cezeaux, which has been swabbing off and on a small amount of oil since last July, and also Humble Oil & Refining Co.'s No. 1 Williams, originally a 1,500-bbl. well but which since has dropped off materially.

At Barbers Hill, the deep sands on the east side of the dome added two more good producers to the steady string of good wells being brought in there. These were D. B. Daniel's No. 3 Woodward, flowing an estimated 1,700 bbls. daily at 5,323 feet, and Humphreys Corp.'s No. 7-H Kirby flowing 1,200 bbls. daily at 5,010 feet.



Map of Danbury area in south central Brazoria County. The acreage is held virtually 100 per cent by Shell Petroleum Corp., except one small tract on the north side owned by Humble Oil & Refining Co.

May Be New Field

Shell Petroleum Corp. Monday was running tubing in No. 1 Blakely Winston on the company's new salt dome prospect in south central Brazoria County. The test, the first drilled there, late Saturday bailed 75 bbls. net oil along with wash water from the shallow sand it was testing at 1,572-78 feet but would not flow. No true gravity test has been made of the oil Monday but it was estimated to be around 20 degrees or slightly better. This wildcat, in the H.T.&B. Survey No. 14, was started for a deep dome test but picked up this shallow sand which looked unusually good and 12½-inch casing was set to test. That the well will make a small producer, opening a new field, is indicated but if it does not or the production is very small, the hole probably will go deeper as originally planned.

Two at DeWalt

Humble Oil & Refining Co. brought in two wells at DeWalt, Fort Bend County. No. 1 Peterson flowed initially at the rate of 1,000 bbls. daily on a three-eighths choke at 3,787 feet, and No. 1-B Sugarland came in flowing 400 bbls. at 3,720 feet. At Refugio, five wells were completed, three oil producers and two gassers. They were Doctor Hewitt and associates' No. 2 Cemetery, flowing 250 bbls. daily at 3,679 feet; Houston Gulf Gas Co.'s No. 8 T. P. Shelly, 300 bbls. daily at 3,668 feet; Houston Oil Co.'s No. 10 Pratt-Hewitt-Rooke, 100 bbls. daily at 3,703 feet; Mission Drilling Co.'s No. 1 J. F. B. Heard, 55,000,000 feet dry gas, 3,410 feet, and the latter's No. 2 Fox, deepened from 3,670 feet to 3,673 feet, 50,000,000 feet dry gas.

Marrs McLean's No. 16 Cade, High Island, Galveston County, completed early in the week for an estimated 1,500 bbls. daily at approximately 3,720 feet, was increasing its flow late in the week, something unusual for that field, most of whose wells hold their flush flow only a brief period before having to be put on the pump.

Pure Oil Co. late in the week was trying to make an oil well out of its No. 1 Mayes, at Lost Lake, Chambers County, which was swabbing between 30 and 35 bbls. daily from sand at 2,688 feet. This well, which, as a 40,000,000-foot gasser at 2,071 feet, was the first well on that dome, was deepened to 2,846 feet where it failed to make a producer and was plugged back to its present level.

Other Completions

Other completions of the week were Empire Gas & Fuel Co.'s No. 27 Barngrover, Hull, flowing an estimated 500 bbls. daily at 3,659 feet; Republic Production Co.'s No. 128 Dolbear, Hull, which flowed at the rate of 3,000 bbls. daily at 2,428 feet but which quit producing after a short time; Empire Gas & Fuel Co.'s No. 8 Groggan, South Liberty, flowing 150 bbls. daily, 3,568 feet; Navarro Oil Co.'s No. 2-A Cain, Pierce Junction, 300 bbls. net oil; 4,850 feet; Salt Dome Oil Co.'s No. 2 Shaw, Vinton, pumping 8 bbls. net oil, 2,999 feet; Lake View Oil Co.'s No. 7 Minor, Sour Lake, pumping 75 bbls. at 2,189 feet; Ada Belle Oil Co.'s No. 129 Carlton, Batson, pumping 5 bbls. net oil, 939 feet.

Efforts to find production on the Brookshire Dome (San Felipe) of Austin and Waller Counties again failed when Kirby Petroleum Co.'s No. 1 Rogers, J. McFarland Survey, drilled solid cap from 3,569 to 3,634 feet and was abandoned. However, Empire Gas &

(Continued on Page 144)

GULF COAST FIELDS AND WILDCATS

Week Ended November 16

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 1 Collier (southeast)	Rigging up to pump 5,387 ft.
Mills Bennett Production Co.'s No. 2 Collier (southwest)	Rig
Mills Bennett Production Co.'s No. 3 Barber, north side	Drlg. lime 2,418 ft.
Mills Bennett Production Co.'s No. 4 Smith, east side	Drlg. shale and lime 4,064 ft.
Mills Bennett Production Co.'s No. 3 Hammon-Armstrong (southeast)	Drlg. shale and lime 4,467 ft.
Mills Bennett Production Co.'s No. 1 Wilburn (southeast)	Drlg. rock 2,036 ft.
Gulf Prod. Co.'s No. 1 Wilburn	Drlg. shale and lime 3,616 ft.
Humphreys Corp.'s No. 8-A Kirby, north flank	Drlg. shale and lime 4,971 ft.
Humphreys Corp.'s No. 7-H Kirby, east side	Comp flowing 1,200 bbls. 5,010 ft.
Humphreys Corp.'s No. 2-C Kirby	Drlg. shale and lime 5,259 ft.
Humphreys Corp.'s No. 6-B Kirby (workover)	Bailed salt water 4,120 ft; S. D.
Humphreys Corp.'s No. 1 Higgins	Swabbed some oil in cap rock 841 ft.; to pump.
Humphreys Corp.'s No. 1 Scott	Drlg. lime rock 1,660 ft.
Humphreys Corp.'s No. 1 McLean, east side	Drlg. sand and boulders 785 ft.
D. B. McDaniels' No. 3 Woodward	Comp. flowing 1,700 bbls. 5,323 ft.
Republic Production Co.'s No. 3 Kirby (southeast)	Rig.
Rexal Oil Co.'s No. 3 McLean, east flank	Swabbing 5,170 ft.
Rexal Petroleum Co.'s No. 1 Smith (east)	Drlg. 1,906 ft.
Sinclair Oil & Gas Co.'s No. 2 Wilburn, southeast	Location.
Superior Oil Corp.'s No. 2 Tilfrey (east)	Cmtd. casing to test oil sand 5,193 ft.
Sun Oil Co.'s No. 2 McKinney (southeast)	Milling 5,160 ft. total depth 5,731 ft.
Sun Oil Co.'s No. 1 Wilburn (southeast)	Sidetracking 4,985 ft.
Sun Oil Co.'s No. 2 Wilburn, southeast	Drlg. gumbo and lime 3,372 ft.
The Texas Company's No. 1 Wilburn (southeast)	Set 125 ft. screen 5,177 ft.; swabbing.
Sun Oil Co.'s No. 3 Wilburn, southeast	Drlg. shale and lime 386 ft.
The Texas Company's No. 2 Wilburn, southeast	Set 133 ft. screen 5,112 ft.; swab.
The Texas Company's No. 1 Lawrence	Drlg. shale 5,197 ft.
Yount Lee Oil Co.'s No. 8 Chambers, south	Rigging up to pump 5,238 ft.
Yount Lee Oil Co.'s No. 9 Chambers, south	Drlg. sand and shale showing oil 4,790 ft.
Yount Lee Oil Co.'s No. 4 Woodward, southeast	Drlg. shale and lime 5,110 ft.
Yount Lee Oil Co. No. 5 Woodward, southeast	Drlg. sand and rock 2,484 ft.
Yount Lee Oil Co.'s No. 1 Phillips	Drlg. gumbo and lime 2,676 ft.

BOLING—FORT BEND AND WHARTON

Houston Gulf Gas Co.'s No. 1 Fields (northwest)	Rig

RACCOON BEND—AUSTIN COUNTY

Humble & Valley's No. 5 Austin College	Derrick.
Humble & Valley's No. 3 Beal	Drlg. 1,114 ft.
Humble & Valley's No. 3 Buchanan	Location.
Humble & Valley's No. 6-A Walton	Drlg. shale and lime 2,942
Humble & Valley's No. 7-A Walton	Derrick.
Humble & Valley's No. 7-A Deutrich	Drlg. sandy shale and shell 3,290 ft.
Humble & Valley's No. 3-A Walton	Derrick.

(Continued on Page 136)

Barrett ANTI-CORROSION SPECIFICATIONS

for EVERY corrosive condition encountered in pipe line construction

Barrett pipe line felts shown in upper photo are specially designed for use with hot enamels in extreme conditions and where rough handling incident to pipe line construction is expected. They are strong enough to withstand exceedingly tight wrapping stresses when heated by hot pipe line coating.

Barrett Anti-Corrosion Specifications provide a homogeneous coating which is hard, tough and resistant to mechanical tamping of back-fill in city construction where streets must be prepared for repaving, etc.

IT'S true that a serviceable pipe line, like a chain, is no better than its weakest link. Yet too often these weak links are overlooked in those trenches in which many out-of-the-ordinary corrosive conditions are found. And these conditions cannot be combated by *ordinary* pipe line protection measures.

Barrett Anti-Corrosion Specifications comprise formulas and methods of application which successfully stem the action of corrosive elements. The product of more than seventy-five years' experience in producing waterproof and weather-proof protection for nearly every kind of material, Barrett Anti-Corrosion Specifications add years of uninterrupted service to pipe lines—whether in mountain, valley, swamp or desert, or under city streets.

The waterproofing agents used with Barrett Anti-Corrosion Specifications are made from the finest coal-tar pitch. This anti-corrosive agent is combined with binders and suitable solvents to produce a tough, durable, non-porous coating that is non-absorbent, heat resisting, chemically inert and high in dielectric properties.

Barrett Anti-Corrosion Specifications include also *Barrett Inspection and Field Service*—and the closest and fullest cooperation from beginning to end of the pipe laying job. The reputation attained by The Barrett Company with Specification Roofs, Tarvia Roads and Underground Waterproofing of tunnels, dams, subways, etc., is your assurance of satisfaction with Barrett Anti-Corrosion Specifications for years to come.

BARRETT ANTI-CORROSION SPECIFICATIONS

Barrett Pipe Line Primer
Barrett Pipe Enamel
Barrett Pipe Line Felts
Barrett Coupler Compound
Barrett Cold-Coater

BARRETT Anti-Corrosion Specifications are made to meet all the many different conditions of pipe line construction. They include re-enforced enamels for extreme conditions, rivers, swamps, etc., enamels to be applied hot in less corrosive sections; cold application for still less corrosive regions.

For information on pipe line protection you are invited to phone, wire or write.

The Barrett Company

40 Rector St., New York

Increased Activity in North Louisiana

Nineteen Completions in Past Week Scattered Over Seven Parishes. Interesting Wildcat Tests. Arkansas Quiet

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Nov. 18.—Completions in the North Louisiana area during the past week, of which there were no less than 19 speak well for future activities, especially in the Caddo, Richland and Ouachita areas. In addition to the 19 completions, there were 131 wells drilling, 21 rigging up, 18 derricks and 28 new locations. The completions were distributed in the following parishes, Bossier, Caddo, De Soto, Morehouse, Richland, Ouachita and Webster.

Three new wells were added to production in the Elm Grove-Sligo Field of Bossier Parish. Louisiana Gas & Fuel Corp.'s No. 1-A Elston in Section 12-17-12, was completed November 12, estimated at 1,000,000 feet of gas at 1,735 feet. Palmer Corp.'s 14-B Hodges came in on November 9 with an estimated flow of 2,000,000 feet at 1,880 feet. Their 1-A McDade, in Section 12-17-12, completed on November 10, with an estimated flow of 1,500,000 feet at 1,727 feet with 740 pounds rock pressure. Muslow Oil Co.'s No. 1 Peyton, is being drilled below 3,042 feet. This well is located in Section 30-23-11, and was a former completion of the Arkansas Natural Gas Corp. on July 5, 1928, at which time it had an estimated flow of 35,000,000 feet of gas. Derrick is now being built to resume drilling.

Caddo Parish

R. W. Norton's wildcat in Caddo Parish which has been the subject of much interest in this district, tested salt water with a little showing of oil at 3,838 feet with about 10 feet of sand. Many oil men are watching I. N. Pharis' wildcat in Section 19-19-14. At a depth of 2,409 feet, 6⅝-inch casing is being set with 13 feet of broken sand. The Shreveport Oil Corp., with a completion of their No. 1 Hicks as a 75-bbl. pumper at 2,118 feet, look to another success with their No. 2 Hicks which they are bailing to test at 2,199 feet, both wells located in Section 32-21-15. W. D. Chew completed his No. 5 fee in Section 33-21-16, as a 25-bbl. pumper on November 8 at 2,330 feet. Location of the well is in Section 33-21-16, Oil City district, Caddo Field. Sam Gold may have a small pumper in his No. 3 Hunter of the Dixie extension, which now has 200 feet of oil in the hole, with some salt water. The sand was topped at 2,415 feet, total depth 2,457 feet and is now waiting for standard rig. In the Mooringsport district of Caddo, C. B. Moore's No. 1 Buckalew, developed into a 4-bbl. pumper. At this writing Simplex Oil Co. is bailing to test No. 7 Hunsicker at 2,219 feet. Standard Oil Co. abandoned No. 9 Hunter in the Dixie extension, at 2,435 feet.

Magnolia Petroleum Co.'s No. 1 Anna Mason, in Section 27-12-11, De Soto Parish, tested 2,000,000 feet of gas with a flow of salt water at 2,614 feet and is now coring, total depth 2,622 feet.

Activities in Morehouse Parish include the addition of another gas well and six new locations. Bahan & Bahan completed their No. 1 Feazel in Section 3-20-24 as a 4,000,000-foot gasser at 2,135 feet. J. S. Herkness is cementing 6-inch casing in No. 11 Bowles at 2,157 feet, and the Southern Carbon Co. is doing the same in No. 12 Tensas at 2,177 feet.

Five new completions were registered for Ouachita Parish during the week. Austin & Jordan's No. 2 McGuire in Township 18-3e, was completed with an estimated flow of 1,500,000 feet of gas at 2,275 feet. Chauvin Gas Co.'s No. 1 Johnson in Township 18-4e, on completion November 10, estimated 1,500,000 feet, also, at depth of 2,256 feet. Hope Producing Co.'s No. 1 Fairbanks, which tested about 500,000 feet of gas at 2,160 feet, will be deepened. Jordan Drilling Co.'s No. 5 J. Cole, in Section 35-18-3e, was estimated 2,000,000 feet at 2,192 feet. Palmer Corp.'s No. 1 Cagle will be deepened after testing salt water at 2,386 feet. Another 5,000,000-foot producer was brought in by Stubbs Trustee, in No. 1 Linton Stubbs in Section 19-19-4e, at 2,180 feet, while Trousdale Wright's No. 1 Kate Cole added another 3,000,000 feet of gas at 2,130 feet November 11. An even dozen new locations were made during the week in Ouachita Parish.

The next week should bring news of several new producers in the Richland Field as quite a number of wells being drilled are nearing the pay. The past week added two new wells, however, both good sized producers, in W. C. Feazel's No. 2 Brown which, on November 10, gauged 46,000,000 feet at 2,435 feet with 705 pounds rock pressure. The other well was Hope Producing Co.'s No. 1 J. H. Hemler in Section 11-18-6e, which added 49,000,000 feet to production at 2,450 feet, with 805 pounds rock pressure. There were three new locations made.

Deep Exploration

Deep sand exploration in the Zwolle Field of Sabine Parish, has taken another interesting turn with A. H. Tarver and the Shreveport-El Dorado Pipe Line Co.'s Long Bell Lumber Co.'s No. 1, Section 29-8-13, making heads of oil and gas from a total depth of 3,617 feet. Liner probably will be set within the next few days, as 6⅝-inch casing has already been set at 3,369 feet. This well is 5 miles north and slightly east of the present producing field, such production being mostly from chalk rock formation around 2,350 feet. Tarver's well is about 3 miles east of R. L. Gay's No. 1 Long-Bell, which is fishing for drill stem at 3,533 feet. Tarver's well had a good gas showing at 3,400 feet and an interesting showing of both oil and gas at 3,535 feet. Gay's three producers, all in Section 14-7-14, continue to mount in yield. The discovery well, No. 1 Bowman-Hicks, turned into tanks last Thanksgiving Day flowing 50 bbls. has now mounted to 160 bbls. No. 3, completed in May, is flowing 110 bbls., while No. 4 is making 160 bbls. daily on the beam. Gay is setting casing for a test on his Bowman-Hicks No. 1-A in Section 34-8-12, around 2,405 feet, where an interesting formation showing oil has been encountered. It is 12 miles west of the producers. His No. 2 Sabine Lumber Co. in Section 23-7-14, is drilling at 3,740 feet, while his No. 5 Bowman-Hicks is drilling at 2,165 feet, after setting 8¼-inch casing.

Union Parish had no producers for the past week, although three new locations were made. Lyons Gas Co. cemented the 6⅝-inch casing in their No. 1 H. M. Jones at 2,090 feet, while Interstate Gas Co. cemented the 6-inch casing in No. 23 Fee at 2,137 feet.

Webster Parish

Two new producers in Webster Parish drew much interest from the Magnolia

(Continued on Page 140)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

NORTH LOUISIANA
BOSSIER PARISH

Company, farm and location—	Remarks.
Corbett et als' No. 1 Murff, SE cor. NE, Sec. 18-17-11	S. D. 990 ft.
Sam Gold's No. 1 McFarlin, SE cor. SW SW Sec. 7-19-13.	Derrick pattern.
Neil & Lanier's No. 1 Biedenharn, SE cor., Sec. 23-21-14.	Bailing to test 1 ft. sand.; T.D 1,015 f.; arranging to re-test at 998 ft.
S. P. Lanier's No. 1 Le Rosen, 300 ft. S., 1,600 ft. W, NE cor. Sec. 26-21-14	Location.
G. D. Nesbit's No. 1 Leonard, 1,900 ft. N, 957 ft. E, SW cor. Sec. 26-19-13	Began drlg. Nov. 4; set 12½-in. csg. 225 ft.
Walker et als' No. 1 Antrim. NW cor. SE, Sec. 28-22-13.	Shut down; workover 3,184 ft.
Woodmansee et als' No. 1 Bollinger, SE cor. NE, Sec. 9-22-11	Dry and abd. 3,532 ft.

CADDO PARISH

D. C. R. Oil Co.'s No. 2 Oden, 892 ft. W, 264 ft. S, NE cor. NE NW, Sec. 20-19-14	Dry and abd. 2,802 ft.
Haynes Bros.' No. 1 Oden, 1,650 ft. S., 330 ft. W, NE cor., Sec. 20-19-14	Cored sand showing S.W. 2,471 ft W.O. 2,505 ft; may make deep test; waiting orders 2,505 ft.
Lide et als' No. 1 Levee Board, 200 ft. S, 200 ft. W, NE cor., Sec. 24-19-15	Drlg. at 2,433 ft.
R. W. Norton's No. 1 Hill, 630 ft. N, 1,260 ft. W, SE cor. NE, Sec. 22-22-16	10 ft. in sand; drlg. 3,838 ft.
S. T. Oynett, trustee's No. 1 Dixon, SW cor., Sec. 10-19-14.	W.O.S.R.; making small heads.
I. N. Pharis, trustee's No. 1 Oden, NE cor. SE NE, Sec. 16-19-14	S.D. 2,322 ft.; topped sand at 2,396 ft.; set 6⅝-in.; T. D. 2,409 ft.
Standard Oil Co.'s No. 2 School Land, 330 ft. S, 330 ft. E, NW cor., Sec. 16-19-14	Abd. at 2,882 ft.
Planters-Oil Co.'s No. 1 Pittman, 200 ft. S, 200 ft. E, NW cor. NE, Sec. 23-19-14	Deep sand test 6 ft. broken sand 2,502 ft.; dry show oil; casing 2,530 f.; S.D. waiting orders 2,585 ft.

CALDWELL PARISH

Louisiana Oil Ref. Corp.'s No. 1 La. Central O. & G. Co., 200 ft. N, 210 ft. W, SE cor. Sec. 31-12-3e	Began drlg. Oct. 31; in shale and sand 1,182 ft.
Lochnager Pet. Co.'s No. 1 Taliaferro, 572 ft. E. 396 ft. S, C, Sec. 26-9-6	S.D. 900 ft.

CLAIBORNE PARISH

El Dorado Chief Oil Co.'s No. 1 Dance, C SW NE, Sec. 27-20-7	S.D. 2,240 ft.
Leue Oil Co.'s No. 1 Taylor, Sec. 16-22-8	Derrick.
Triangle Drlg. Co.'s No. 1 Kilpatrick, 660 ft. S, 660 ft. E, NW cor. SW NE, Sec. 7-19-5	Drlg. 2,340 ft.

DESOTO PARISH

Benson Oil Co.'s No. 1 Harris, Sec. 6-10-13	Drlg. rock 1,520 ft.
Benson Oil Co.'s No. 1 Hill, 1,8455 ft. S, 1,26. ft. W, NE cor., Sec. 4-10-13	Began drlg. Oct. 13; S.D. for wtr 100 ft.

(Continued on Page 178)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA
BOSSIER PARISH—ELM GROVE

Company, farm and location—	Remarks:
La. Gas & Fuel Co.'s No. 1-A P. L. Elston, 1,980 ft. N, 660 ft. W, SE cor. Sec. 12-17-12	Began drlg. Oct. 26; cmtd. 12½-in. 123 ft.; drlg. shale 412 ft.
La. Gas & Fuel Co.'s No. 1 T. A. Lawrence, 3,300 ft. N and W, SE cor. Sec. 12-17-12	Location.
Palmer Corp.'s No. 14-B Hodges, C E½ SW, Sec. 24-17-12. 24-17-12	Tested estimated 2,000,000 ft. gas; arranging to siphon 1,880 ft.
Palmer Corp.'s No. 1-A J. A. McDade, 2,310 ft. W, 660 ft. N, SE cor., Sec. 12-17-12	Completed Nov. 10; estimated 1,500,000 ft. gas, 740 lbs. rock pressure; 1,880 ft.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1-A Agurs, 819 ft. S, 157 ft. E, NW cor. SW, Sec. 7-16-16	Drlg. chalk 1,695 ft.
Eastern Carbon Co.'s No. 1 Z. Abney, Sec. 8-17-16	Drlg. 2,425 ft.

CADDO PARISH—HOSSTON

Bayou State Oil Corp.'s No. 18 Levee Board, 450 ft. N, 150 ft. E, SW cor. NW, Sec. 23-22-15	Drlg. 980 ft.

CADDO PARISH—MOORINGSPORT

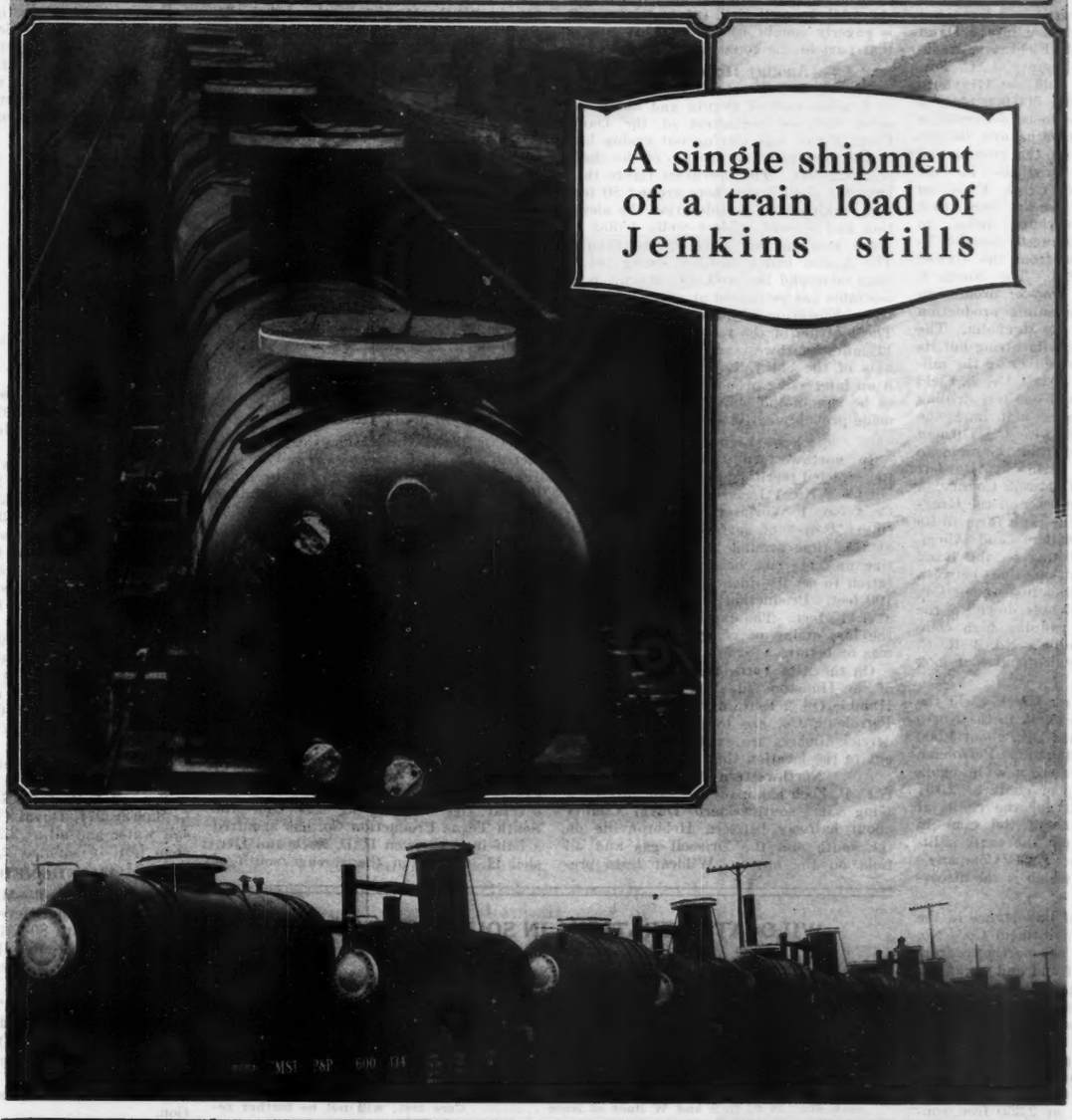
C. B. Moore's No. 1 Buckalew, 2,000 ft. N, 1,000 ft. W, SE cor., Sec. 30-20-15	Completed Nov. 16; 4-bbl. pumper 2,304 ft.

CADDO PARISH—DIXIE

T. C. Adams et als' No. 1 Dickson, 990 ft. E, 330 ft. N, SW cor. NW, Sec. 10-19-14	Drlg. 2,546 ft.
Eylers Oil & Gas Co.'s No. 1 Sentell, SW cor. NE, Sec. 9-19-14	Tested dry 2,447 ft; S.D; W.O; 2,501 ft.
Fitzsimmons Drlg. Co.'s No. 1 Sentell, C W½ NW SW SW, Sec. 10-19-14	Location.
Sam Gold's No. 3 Hunter, 660 ft. N, 660 ft. W, SE cor. SW NE, Sec. 17-19-14	200 ft. oil and S.W. in hole 2,457 ft; W.O.S.R; topped broken sand 2,415 ft.
Ohio Oil Co.'s No. 4 Hunter, 330 ft. N and W, SE cor. NW NE, Sec. 17-19-14	Derrick.
Ohio Oil Co.'s No. 6 Hunter, 330 ft. S, 330 ft. W, NE cor. NW NE, Sec. 17-19-14	Cored S.W. sand; S.D; W.O; T.D. 2,482 ft.
Old River Oil Corp.'s No. 1 Byrd, Sec. 15-19-14 (no check)	Cmtd. 10-in. 102 ft; drlg. 2,047 ft.
Ray-Dawes Drlg. Co.'s No. 4-A Hunter, Sec. 9-19-14	Completed; 75 bbls. 2,478 ft.
Standard Oil Co.'s No. 8 Hunter, Sec. 17-19-14	Location.
Standard Oil Co.'s No. 3 Henderson, 220 ft. N, 330 ft. W, SE cor, SW SE, Sec. 7-19-14	Dry and abd. 2,457 ft.
The Texas Co.'s No. 3 Hunter, 990 ft. W, 330 ft. N, SE cor., Sec. 8-19-14	Recmtng. bottom of hole; T.D. 2,448 ft.
The Texas Co.'s No. 6 Hunter, 165 ft. N, 330 ft. E, SW cor. Sec. 9-19-14	W.O.S.R.; 2,436 ft.

(Continued on Page 135)

JENKINS CRACKING PROCESS



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Buys 1,500,000 Bbls. Darst Creek Oil

To Be Delivered to Grayburg Oil Co. From Leases Not Yet Drilled by United North & South Oil Co. and L. C. Turman

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Nov. 18.—Grayburg Oil Co. has purchased 1,500,000 bbls. of crude oil to be delivered from leases not yet drilled in the Darst Creek Field in Guadalupe County. L. C. Turman sold the Grayburg Oil Co. 500,000 bbls. of crude to be delivered in six months and he has rigs on the ground and six locations in the Darst Creek Field on acreage that looks like a sure shot for production. Grayburg prior to that, as already announced, bought 1,000,000 bbls. of crude from the United North & South Oil Co. The North & South doesn't own a drop of production at this time. All its Luling production was long since sold to the Magnolia. The company is doing some wildcatting but its most likely chance for delivering the million barrels is in the Darst Creek Field where it has acreage and one test drilling with the chalk running high and the acreage looking good. L. C. Turman is to lay a pipe line from the field to the Grayburg's tank farm at Burdett north of Luling in Caldwell County, a distance of about 14 miles, and the Grayburg has a line from the tank farm to its refinery. Trinity Drillers and Clements have one test drilling on the Rand Miller tract, directly on line between production, and Mundine Investment Co., Inc., has its No. 1 Echols down to the chalk and the chalk running high compared with the Magnolia's No. 1 R. C. Appling north of it which makes it look like a producer.

Features of the Darst Creek Field the past week are the high chalk in the North & South's No. 1 Thomas Dix, about 1,500 feet north of the Magnolia Petroleum Co.'s No. 1 Rand Miller, now in chalk at 2,210 feet with top of chalk at 2,197 feet. North & South got the chalk at 2,160. Elevation is about the same in the two tests. Each got the chalk a little higher than in The Texas Company's No. 1 Dallas Wilson, which is the discovery well of the field.

The other element of importance in the field is the Mundine Investment Co.'s No. 1 L. V. Echols off to the northeast from the Magnolia's No. 1 Rand and a quarter mile south of the Magnolia's No. 1 R. C. Appling which is producing at around 2,500 feet where it is supposed to have got the chalk but cut the fault plain and the production is supposed to be coming from the Edwards lime up the fault plain. Mundine Investment Co.'s No. 1 L. V. Echols with the chalk at 2,350 feet, considering that the location is to the southeast of the Magnolia Petroleum Co.'s No. 1 R. C. Appling, is looking good to most folks who believe it has the chalk high enough to make a producer and to indicate in a way some of the outlines of possible producing acreage.

Darst Creek Wildcats

Grayburg Oil Co.'s No. 1 Wells, approximately 7 miles nearly due south of the Darst Creek discovery well, topped the Austin chalk at 3,495 feet and is now drilling below 3,680 feet. Elevation is 505 feet. This location is down the dip (toward the Gulf) which accounts for getting formations so much deeper. The top of the chalk at 3,495 feet is a correction since last report.

Four miles SE of the Darst Creek discovery well A. G. Keiffer connected up a new boiler for his No. 1 Dix which has been standing at 2,686 feet and has taken a core or two which deepened the hole a little. This test created considerable excitement when it made a lot of gas at around 1,400 or 1,450 feet some months ago. It is in Taylor marl and said to be showing a little oil and the position of the well is such that information on it is eagerly sought by all lease owners in that part of the country.

Another High Chalk

Pagenkoff & Kennon's No. 1 Halm, 5 or 6 miles east of Seguin and about the same distance northwest of the Darst Creek Field, was moving out casing late in the week to set at the top of the chalk at 1,622 feet. The operators figure they have the chalk somewhere around 80 feet high, taking into consideration the elevation and several wildcat wells drilled in years past in that part of the county. The Austin had a distinct strong petroleum odor and the well was making considerable gas estimated at around 500,000 feet. Elevation of the test is 496 feet. The location of the test is approximately 11 miles southwest and in line with the axis of the old Luling Field. It makes it an interesting proposition. Casing was to be run in the hole and a test will be made probably early this week.

Spot Light Areas

In northwestern Brooks County and the affected territory around the Houston Oil Co.'s No. 1 Lasater, the Houston Oil Co.'s No. 1 Wormser-Holbein after setting 350 feet of surface casing is down at this time around 2,000 feet and cutting an 11½-inch hole. It is the expectation to set 9½-inch casing at about 4,100 feet. Production in No. 1 Lasater is at 4,115 feet. The expectation is to have the last string of casing set by Christmas or before.

On the Alta Verde Dome 5 miles south of the Houston Oil Co.'s test where the Humble Oil & Refining Co. and the Shell Petroleum Co. are to drill a joint test derrick timbers are expected to be moved out to the location this week.

Northwestern Jim Hogg

F. P. Zoch has made location for No. 1 King in southwestern Duval County about halfway between Hebbronville on the south and the Driscoll gas and oil field on the north. Wildcat tests previously drilled by other operators in that part of the country have disclosed that there is a thickening of the sands compared with the Mirando pools to the west and there have been more or less showings of oil and gas and the production of both oil and gas in the Driscoll Pool. Zoch's test made by Hershell H. Cooper is 660 feet from the north and east lines of Block 25 of the Hoffer & Smith Subdivision of the King land and is approximately a mile southwest of where Hoffer & Smith drilled and got to 2,620 feet. Zoch plans to go much deeper. The location is approximately 1½ miles from the north line and one mile from the west line of the Diego Hinojosa Grant.

Production at about 2,400 feet in the Frio and at about 2,900 feet in the top of the Jackson formation in wells in the Driscoll Field and the thickened sands make any test drilled a little east of north or a little west of south of that field interesting as that is about the trend of the folding and faulting in the Laredo territory.

Laredo District

South Texas Production Co. has completed a 25,000,000-foot gas well on the Jennings land east of the Jennings gas field. The well is its No. 6 Joe Jennings and casing was set at 1,743 feet. The South Texas Production Co. is a subsidiary of the United Gas Co. (Moody-Seagraves interests) and is developing gas for the line to run to Monterey, Mexico. This line is now nearing completion and will be tested and running gas by the first of the coming year. The minimum daily purchase of gas for Monterey and the industries around it is 50,000,000 feet. The line on the American side is being built by the South Texas Co. On the Mexico side of the river the company will be a chartered Mexican company.

In addition to developing a supply of gas in the Laredo territory where it has several rigs running at this time the South Texas Production Co. has acquired a half interest from F. P. Zoch and Hershel H. Cooper in the acreage south of the White Point Field in Nueces County where F. P. Zoch's No. 1 Baldwin was drilled some months ago opening an important extension to the White Point Field. All the Moody-Seagraves interests in the Agua Dulce Field have also been transferred to the South Texas Production Co. These fields will supply the Mexico line, and the demands of the line will necessitate additional drilling.

Branyon	25
Bruner	35.031
Dale	462
Dars. Creek	1,476
Kingsville	342
Larremore	151
Luling	10,275
Lytton Springs	947
McMullen County	45
Medina County	24
Mirando	9,834
Somerset	1,758
Yoast	1,135
Total	61,505
Week ending November 9	62,169
Decrease	664

Laredo District

Other than the South Texas Production Co.'s No. 7 Joe Jennings, the only producer completed in the Laredo district the past week was the Magnolia Petroleum Co.'s No. 2 Lundell in Duval County on the west side of the Schoolfield-O'Byrne Pool at 2,331 feet with sand from 2,301 feet, and good for 50 bbls. of oil. This test is one location north of No. 1 Lundell which came in a 15,000,000-foot gas well but which later turned to oil and extended the field a little west.

Magnolia Petroleum Co.'s No. 1 S. Perez set casing at 2,489 feet and is waiting on cement after testing gas on a drill stem test. It is at the northeast end of the gas field which lies north of the Mag-Cole oil pool in Webb County. The test extends the field a little to the east and a feature about it is that it is 100 or more feet deeper than the other gas wells in that field.

Trussell & Partee's No. 1 E. R. Hagist in Survey 271, Duval County, tested gas, salt water and oil at 2,260 feet on a drill stem test, in sand at 2,252-56 feet.

ABANDONED TESTS

Rockdale Pool—Milam County

Texas Petroleum Development Co.'s No. 1 Milton Phillips 80-A in the J. J. Chambers Survey, in center Rockdale Pool, 600 feet north of No. 14, was abandoned dry at 3,711 feet.

NEW LOCATIONS

Adams Gas—Medina County

Jake Jarman's No. 1 J. P. Nixon in the A.B.&M. Survey No. 63, 1,400 feet to north line, 1,300 feet to east line, in southwest end of Adams gas field, is location.

DRILLING OPERATIONS

Brooks County—Lassater Field

Houston Oil Co.'s No. 1 Holbein-Wormser in the Palo Blanco de Maguellas Survey, 330 feet to north line, 6,540 feet to east line, direct offset 660 feet south of No. 1 Lassater; total depth 1,700 feet; reaming.

Caldwell County—Buchanan Pool

Neuman & Speer, Inc.'s No. 1 McConnell in the William Spiller Survey, 900 feet southwest of The Texas Company's No. 1 Cude; total depth 1,945 feet; in gray formation; set casing at 1,907 feet.

Caldwell County—Bruner Field

Humble Oil Co.'s No. 5-A M. Briscoe in the J. Hinds Survey, 206 feet to north line, 485 feet to west line, total depth 2,477 feet, drilling in lime. Humble Oil & Refining Co.'s No. 9 C. F. Dye in the Hinds Survey, 300 feet east of No. 1 Dye; total depth 500 feet, drilling in shale. Humble Oil & Refining Co.'s No. 9-C Floy Gray in the J. Hinds Survey,

(Continued on Page 140)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

Week ended November 16

BASTROP COUNTY

T. C. Hadley's No. 1 F. Kiel, R. H. Grimes Sur., 150 ft. E line, 1,000 ft. S line ..... Drlg. 3,727 ft.; in shale waiting for drill stem.

R. L. Batts et al's No. 1 A. L. Alexander, W. M. Eastland Sur., 1,350 ft. from W line, 750 ft. from S line ..... Location.

Owens et al's No. 1 Goodman ..... Top Buda; shut down 2,540 ft.

Superior Oil Co.'s No. A-1 G. T. King, G. T. Glasscock Sur., 20 ft. to S and W lines of lease ..... Core test; will not be further reported.

BEE COUNTY

Houston Oil Co.'s No. 1 McKinney, L. C. Randolph Sur. ..... Drlg. 2,550 ft. in shale.

The Texas Company's No. 1 Tipps, C. Clark Sur., 150 ft. from S and W lines of Blk. 45 ..... Location.

Mission Drilling Co.'s No. 4 Ray in Geor. S. Kerr Survey .. Abandoned, dry at 4,425 ft.; showed 30,000 ft. of gas and some water at 2,700-2,750 ft.

Nichols et al's No. 2 Hicks in Jose Maria Uranga Survey, 600 feet to N. line, 2,000 feet to W. line ..... T. D. 2,000 ft.; fishing for tubing.

BEXAR COUNTY

Guy S. Fisher's No. 1 S. L. Beck, P. W. Hays Sur. ..... T. D. 1,002 ft.; shut down.

F. H. Eckert's No. 1 Sandemer, Sur. 52 ..... Drlg. 615 ft.

Penn-Tex Oil Co.'s No. 1 Kate May, P. R Desauge Sur. No. 134 ..... T. D. 1,615 ft.; drlg. in chalk topped at 1,470 ft.

Rose E. Denton Co.'s No. 1 Clarence B. Uhl, 150 ft. to S and W lines, 6 miles SE from San Antonio ..... Location.; drlg. water well.

Moore-Jauer's No. 1 Holly R. Ellison ..... Drlg. at 6,760 ft. in gray sand.

Leon Oil Co.'s No. 1 Reiniger, 300 ft. E line, 315 ft. S line ..... T. D. 1,670 ft.; setting casing in top of Edwards lime.

E. G. Potter's No. 1 Watson, B. Martinez Sur. ..... T. D. 2,509 ft.; shut in, making small amount of oil through connections at top of well; will hardly make paying producer; top of chalk 1,990 ft.; top Edwards 2,500 ft.

W. C. Sutherland's No. 1 J. Halberdier, Survey 57, located 150 E of Cen of W. line ..... Location.

BLANCO COUNTY

Ashe & Marshall's No. 1, 5 mi. S Johnson City ..... Survey corrected; erecting Na-

(Continued on Page 175)

READ HOW
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FAIRBANKS-MORSE
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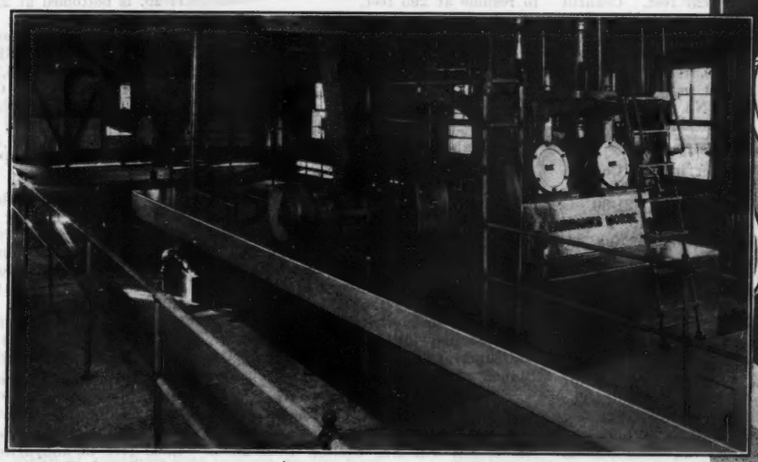
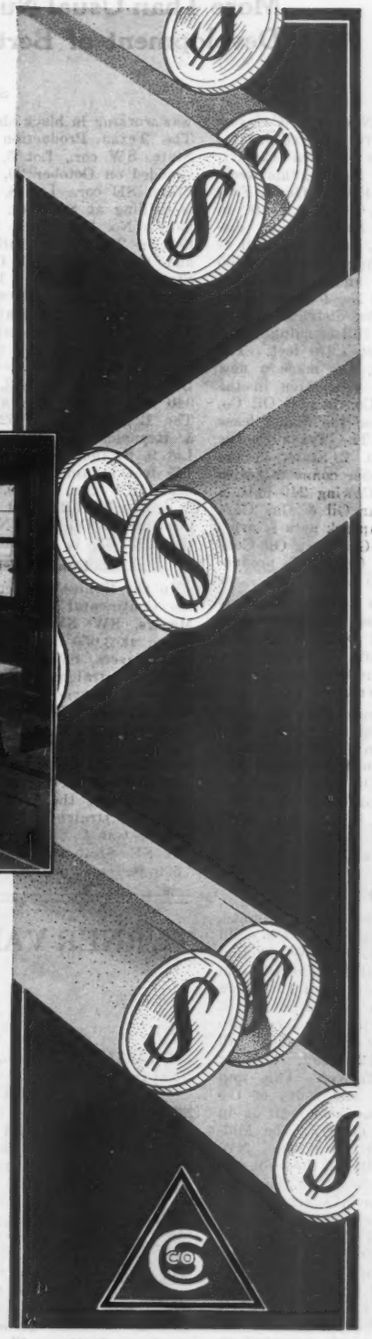
VERTICAL DIESEL





THIS engine is operating 23- 1400 ft. wells on a band wheel power and is also driving a 35 KVA alternator for treating the oil. It is installed with 2-42″ Eclipse cut-off couplings for Diesel or steam engine drive to the jack shaft.

The power company in this district sells current at 1-1/8¢ per kilowatt-hour without maximum demand charge, but still this operator has found that this engine operating continuously with a fuel consumption of 60 barrels fuel per month, 35 gallons of lubricating oil per month and repair cost of less than $1.00 per horse power per year, shows a very decided saving over the use of purchased power.

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224 Traders Building, Calgary, Alberta, Canada

CONTINENTAL

J-567

Sulphur Water in Lea County Tests

More Than Usual Number of Completions in Wyoming. Deal for Development of Berthoud Dome in Larimer County, Colorado

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Nov. 19.—Unfavorable developments were reported in two wells in Lea County, New Mexico, this week. The Empire Gas & Fuel Co.'s No. 3-B State, in the San Simion district, had a hole full of sulphur water at 3,965 feet, and the Ohio Oil Co.'s No. 1 State, in the Hobbs district, had a hole full of sulphur water at 4,210 feet. The Midwest Refining Co. has made a new location southeast of production in the Hobbs area and the Continental Oil Co. has made a location on the Sholes lease in the Jal district. The Texas Pacific Coal & Oil Co.'s No. 2 State, in the Ochoa district, has been connected with the pipe line and is flowing 240 bbls. a day and the Maljamar Oil & Gas Co.'s No. 2 Baish in the Caprock area is averaging 160 bbls. The Grayburg Oil Co.'s No. 2 Keely, in Eddy County, is producing an average of 300 bbls. a day.

The principal news in Colorado was the completion of a deal for the development of the Berthoud Dome in Larimer County by the Standard Oil Co. of Colorado, and supplying natural gas to several towns in that territory.

Wyoming reported more than the usual number of completions, of which two were large gas wells in the Baxter Basin Field by the Mountain Fuel Supply Co. The Fargo-Western Oil Co. proved up some new territory for black oil in the Poison Spider district in a 200-bbl. well, a 180-bbl. well was completed in the LaBarge Field, and a 100-bbl. well in the Osage Field.

NEW MEXICO

In the Hobbs district in Lea County, southeastern New Mexico, the Ohio Oil Co.'s No. 1 State, NE SE SW, Section 9-19-38, which swabbed and flowed from 60 to 90 bbls. of oil and about 12 bailers of water a day from a total depth of 4,208 feet, resumed drilling and ran into more water. The hole was standing full of sulphur water at 4,210 feet. Drilling is continuing at 4,225 feet. This well is about a mile west and south of the nearest producers. One new location in the Hobbs area was made in the Midwest Refining Co.'s No. 6 Wright, NW cor. SW, Section 14-19-38, three-fourths of a mile to the southeast of the same company's No. 24 Leach, a recent completion. The Humble Oil & Refining Co.'s No. 1 Bowers, C NE SE, Section 30-18-38, is still bottomed at 3,687 feet and trying to mud off a flow of 50,000,000 feet of gas to drill deeper. The Midwest Refining Co.'s No. 24 State, NE SE SW, Section 10-19-38, is standing at 1,668 feet with the 10-inch cemented on bottom, and its No. 13 Terry, SE NE SW, Section 10-19-38, is bottomed at 1,484 feet in the red beds. The Shell Petroleum Co.'s No. 1 Thorpe, SW NW SE, Section 10-19-38, is drilling at 1,640 feet in anhydrite, and its No. 1 Terry, SE SW NE, Section 22-19-38, is drilling at 4,090 feet in lime. Cecil Bordages' No. 1 Hughes, CWL SE, Section 27-19-38, is bottomed at 4,012 feet and preparing to cement off water. Harrison and others' No. 1 Tatum, NW SW SW, Section 35-18-38, is digging cellar.

The San Simion district in Lea County had a disappointment when the Empire Gas & Fuel Co.'s No. 3-B State, SW NE SE, Section 5-21-35, was reported showing sulphur water. At 3,880 feet it was making 1 bbl. per hour. This was followed by a show of oil at 3,815-20 feet and at 3,965 feet, the hole was full of water. The bit at last reports was working in black shale at 3,965 feet. The Texas Production Co.'s No. 1-B State, SW cor., Lot 5, Section 1-21-33, spudded on October 29, and its No. 1-A State, SE cor., Lot 8, Section 2-21-33, is drilling at 890 feet. The same company's No. 2-A State, SW cor., Lot 8, Section 2-21-33, is drilling at 950 feet, and the Continental Oil Co.'s No. 1 State, NW cor., Lot 12, Section 1-21-33, is drilling at 1,000 feet. Snowden & McSweeney's No. 1 State, NW cor. SW, Section 1-21-33, is drilling in the red beds at 525 feet, and the Amerada Petroleum Corp.'s No. 1 State, SW cor., Lot 7, Section 1-21-33, is bottomed at 940 feet in red rock and cleaning out. The 12½-inch is at 525 feet. Cranfill & Reynolds' No. 2-B State, NW cor., Lot 9, Section 2-21-33, is drilling at 1,765 feet in anhydrite, and its No. 3-B State, SW cor., Lot 9, Section 2-21-33, is drilling at 1,280 feet in red rock. The Continental Oil Co.'s No. 2 State, Section 1-21-33, is a location.

Eunice District

In the Eunice district in Lea County, the Continental Oil Co.'s No. 1 A. E. Meyers, SW SW, Section 17-21-36, is coring at 3,650 feet, and its No. 1 William Meyers, SW cor. NW, Section 28-22-36, is straightreaming at 3,520 feet. Fisher & Lowrie's No. 1 State, NE cor. NW, Section 11-18-36, spudded on November 1, and is drilling at 450 feet in red rock. The 15½-inch is at 269 feet. The Penn Oil Co.'s No. 1 State, NE Section 21-19-36, is bottomed at 3,449 feet and swedging the 8¼-inch 400 feet off bottom to straighten a crooked hole. The Empire Gas & Fuel Co.'s No. 1 Clossen, NW SE, Section 6-22-36, is bottomed at 3,590 feet and drilling out cement plug.

In the Jal district in Lea County, the Continental Oil Co. has made a location for its No. 2 Sholes in Section 13-25-36. Cranfill & Reynolds' No. 1 Cushing, SE NW, Section 23-24-36, is bottomed at 2,800 feet in lime and rigging up connections. The Magnolia Petroleum Co.'s No. 1 Lindley, SE cor. NE, Section 26-25-36, has recovered all but nine joints of the 10-inch casing and these are being drilled by. Total depth remains at 2,961 feet. The Humble Oil & Refining Co.'s No. 2-A Lindley, C SW SW, Section 13-25-36, is drilling at 2,836 feet in anhydrite and red beds, and the Empire Gas & Fuel Co.'s No. 1 Lindley, C NE SE, Section 14-25-36, is preparing to resume at 295 feet.

The Texas Pacific Coal & Oil Co.'s No. 2 State, NW cor. SW, Section 21-23-36, Ochoa district, has been put on production and is flowing an average of 240 bbls. daily from a total depth of 3,712 feet. The Texas Pipe Line Co. has extended its line to the lease from the Beulah Lynch well, a 3½-mile 6-inch line, and a 55,000-bbl. storage tank is being erected on the lease. The Maljamar Oil & Gas Co.'s No. 2 Baish, NE cor. SW, Section 21-17-32, was completed at 4,121 feet and is averaging 160 bbls. a day. The Barnsdall Oil Corp.'s No. 1 Bronson, SE cor., Section 28-16-38, Lovington district, is bottomed at 1,190 feet and underreaming the 12½-inch, and A. D. Morton and others' No. 1 State, C NW, Section 29-11-38, Tatum district, is drilling at 1,715 feet after landing the 10-inch at 1,710 feet.

Eddy County

In Eddy County a new location has been made in F. B. Van Horn and others' No. 1, SW SE SE, Section 18-19-26, 3 miles northwest of Lakewood. The Mesa Oil Co.'s No. 1 Seale, SW cor. SW, Section 15-20-27, has been abandoned at 750 feet. The Grayburg Oil Co.'s No. 2 Keely, C SE NE, Section 24-17-29, West Maljamar, or Jackson area, is on production and averaging 300 bbls. per day from a total depth of 3,082 feet. The first oil show was at 2,940-45 feet, followed by sand at 3,065-70 feet. Storage is being erected on the lease. Naylor and others' No. 2 Danciger, NW cor. SW, Section 18-17-31, is drilling at 2,750 feet, and the Lockhart Oil Co.'s No. 1 McAllister, C NW, Section 23-26-30, is drilling at 3,000 feet. Leonard & Levers' No. 1 Levers, NW cor. SE, Section 21-17-29, is bottomed at 2,296 feet and running the 8¼-inch. It is making around 2,000,000 feet of gas. Lockhart and others' No. 1 Parke, SE cor., Section 10-17-30, is drilling at 3,180 feet, and Etz Brothers' No. 1 Etz, C SE SE, Section 13-16-30, is bottomed at 2,670 feet and cleaning out. Flynn, Welch & Yates' No. 1 State, NE SE, Section 19-19-28, south of the Artesia Pool, is rigged and ready to spud.

In the Twin Mounds Pool, George F. Getty, Inc., is making a production test of its several wells in that area. An 80,000-bbl. storage tank has been completed. Its No. 4 Dooley, SE NE, Section 23-20-29, which was completed at 1,356 feet last May, has been turned into the tank and is making around 1,440 bbls. a day. The oil is heavy and tests 22 gravity.

In Guadalupe County, Lockhart and others have taken over the Abo Oil Co.'s acreage and their No. 1 Starkhouse, SE cor. SW, Section 14-3s-6e, is drilling at 1,305 feet in anhydrite.

In San Juan County, the Dorothy Oil Co.'s No. 2 Goede, NW SE, Section 29-30-9, Blanco district, is drilling at 1,000 feet.

COLORADO

A deal which is expected to result in the rapid development of the Berthoud structure in Larimer County, northern Colorado, and the construction of a new natural gas system was reported this week. Officials of the Standard Oil Co. of Colorado, which recently took over a block of acreage on the structure under an agreement with the Five Square Oil & Gas Co., state that arrangements have been completed with Chicago interests for the financing of operations. Previous to the making of the deal the Chicago interests are said to have made a flat offer of $1,000,000 for the properties and rights, which was rejected and then followed by the making of contracts covering future financing.

The Midwest Refining Co. drilled a test on the Berthoud Dome several years ago and though it had good showings of oil and gas, it abandoned the field. The Five Square Oil Co. then went in and in 1928 drilled its No. 1 Fagin, NE SE NE, Section 17-4n-69, which was completed as a gas well making 800,000 feet a day from a total depth of 3,312 feet. This well did not go to the Muddy sand in the Dakota series, but its No. 1-A, SW cor., Section 21-4n-69, was next drilled and is now making 18 bbls. of oil by heads per day through the 6¼-inch casing and considerable gas. No. 1-A State is producing from the Muddy at a total depth of 3,781 feet. The past summer the Standard Oil Co. of Colorado acquired a half interest in this well and offset acreage and agreed to drill another well for the Five Square company to be paid for out of production. This well, No. 1 Hertha, NW cor., Section 21-4n-69, one location to the south

(Continued on Page 144)

TURNER VALLEY OCTOBER OUTPUT PASSES 100,000-BARREL MARK

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Nov. 16.—Official figures show that October deliveries from the Turner Valley Field for the first time passed the 100,000-bbl. mark, establishing a new production record. Up to the end of October, total deliveries from all Turner Valley wells aggregated 762,307 bbls.; and with the return to production of wells that have been frozen off and some possible new production, it seems quite likely that the year's production will exceed 1,000,000 bbls.

October was notable as the first month in which Royalite Oil Co.'s No. 4 showed no deliveries. This well, for several years the outstanding producer of the field, was frozen off the greater part of September and October, and though there was some production the latter part of October the crude naphtha was kept in storage. Home Oil Co.'s No. 2 also choked off to some extent, cutting production from 11,798 to 4,320 bbls. Home's No. 3 was the outstanding producer in October, with 20,366 bbls. of crude naphtha, about 3,000 bbls. short of September. Home's No. 1 made 15,344 bbls. of naphtha and 429 bbls. of light crude.

Among the new producers, Northwest-Associated's No. 1, for its first complete month, showed 8,319 bbls., an average of 268 bbls. a day, this being somewhat short of the current estimates of between 300 and 400 bbls. The Home wells, with 41,349 bbls. of naphtha and crude, provided approximately 40 per cent of the entire production of the field. Among the larger producers were Royalite's No. 7, with 2,990 bbls.; Royalite's No. 8, with 5,221 bbls.; Royalite's No. 17, with 6,669 bbls.; Royalite's No. 18, with 3,115 bbls.; Foothills' No. 1, with 3,228 bbls.; Okalta's No. 1, with 8,485 bbls.; and the McLeod wells with 4,710 bbls. Two new producers figured in this month's returns; Widney Petroleums' No. 1 with a bailing production of 1,781 bbls. of light crude, and British Dominion's No. 2 with 458 bbls. of light crude.

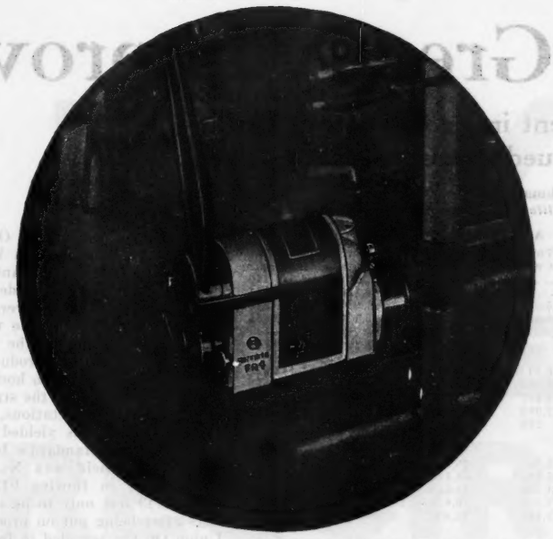
Deliveries to Imperial Oil, Ltd., included 73,158 bbls. of crude naphtha and 14,352 bbls. of light crude oil; while total deliveries to Regal Oil Refineries, Ltd., amounted to 14,946 bbls. The field shows a total of 32 producing wells, of which 22 belong to the Imperial group and the remaining 10 are independents, some of the latter delivering to Imperial Oil, Ltd. The October returns represent an average daily delivery of 3,305 bbls.

Mayland Test

Mayland Oil Co.'s No. 1, LSD 10, Section 17-19-2w5, is at 5,764 feet and still fishing for lost drill rods. Drilling is being handled by Imperial Oil, Ltd., under the supervision of J. H. McLeod. An official statement covers the position of the tests as follows:

"At the time Mr. McLeod assumed

(Continued on Page 142)



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California Situation Greatly Improved

Result of Adoption of Curtailment in Production of Crude. Drilling Operations to Be Continued on a Conservative Basis

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif. Nov. 16.—The voluntary curtailment of crude oil production in several flush fields for a period of 90 days has greatly improved the general situation in California. The reduction in production effected by California producers will permit both large and small operators to maintain drilling operations uninterrupted. Operators engaged in wildcat exploration and prosecuting development work in proven fields have been going full blast all year and every indication points to a continuance of this condition.

Drilling operations at Santa Fe Springs are not expected to show any substantial decline during the next several months due to the probable existence of one or more highly productive horizons. There are 230 strings of tools in operation at Santa Fe Springs and additional holes are being started from time to time. Most of the wells now drilling have the Clarke zone as their objective although some may ultimately be carried down for deep tests. This is especially important because additional wells will be started if another new productive horizon is discovered below the Clarke zone, which is now undergoing intensive development. Drilling operations at Long Beach will naturally decline as time goes on but no early cessation is expected as there are still 131 strings of tools in operation with some good undrilled locations available. Midway-Sunset, on the other hand, will probably continue to reflect development work out in the Maricopa flats where substantial production is being secured from the Sheehan sand discovered by the Signal Oil & Gas Co. last year. Operators in the Elwood, Seal Beach and Ventura Avenue fields will probably continue pursuing an aggressive but conservative drilling program.

Santa Fe Springs

Daily production at Santa Fe Springs, reflecting crude oil curtailment was down within striking distance this week of 150,000 bbls. for the first time since early this year when progressive deep zone development carried field production above the 100,000 bbl. mark for the first time since 1924. The daily production at Santa Fe Springs has been considerably higher than the present allowable quota of 150,000 bbls. during all of 1929 except for one short period when an abnormal decline temporarily carried the field output down to approximately its present level. Completions in the deep zone during the past few weeks have been somewhat lower than heretofore but a check indicates that we may anticipate a large number of completions during the next several months. There are 230 strings of tools in operation in the Santa Fe Springs Field, of which 81 wells are below the 7,000 foot level. In addition to these immediate potential producers, 70 more are between 6,000 and 7,000 feet and 33 more making hole between 5,000 and 6,000 feet.

The General Petroleum is by far the largest single operator from a development standpoint with 53 strings in operation. The Standard Oil Co. is next in line with 26 wells undery way, followed by The Texas Company with 24 drilling wells, the Union with 23, the Shell with 15 and George F. Getty with 18 futnre potential producers. The General Petroleum added two new wells to its list of producers but will probably chalk up several more within the next 15 days. The General Petroleum's new producers were No. 129 Santa Fe and No. 178-C Santa Fe Community. The former was finished doing 1,860 bbls. per day from 6,861 feet, while the latter came in doing 301 bbls. of clean 35.1 gravity oil daily from 7,548 feet. No. 178-C Santa Fe Community would have registered a much larger initial production if it were not that it blew in prematurely with the drill pipe froze two feet off bottom at 7,546 feet. The Shell Oil Co. increased its daily production 2,930 bbls. by completing No. 21 Golay in the Clarke zone at 7,921 feet. This new well is cutting approximately 15 per cent but is nevertheless a satisfactory completion as nothing big was anticipated.

George W. Ring successfully recompleted his No. 1 Santa Fe after redrilling and deepening it to the Clarke zone at 7,930 feet and this rejuvenated producer was returned to production flowing 1,725 bbls. of 34.1 gravity oil daily. This project was originally completed in the Nordstrum zone doing 2,950 bbls. per day from 5,690 feet in December 1928, and made a preliminary flow of 2,835 bbls. per day from its present depth, 7,930 feet, several weeks ago only to sand up a short time later. The Standard Oil Co. got off to a rather poor start in its deep zone development program at Santa Fe Springs but has subsequently made up for lost time and should have several other projects on production in the very near future. The failure of the Standard to participate in flush production in the Buckbee and Nordstrum horizons was because the west end of the structure failed to come up to expectations, whereas the eastern portion has yielded prolific production. The Standard's latest completion in this field was No. 16 Weisel, which came in flowing 915 bbls. daily from 7,943 feet only to be shut in a few days after being put on production. The Union Oil Co. spudded in four new wells on the Bell and Farwell leases during the week and is making preparations to start making hole in five others on the Bell and Howard leases. The Universal Consolidated successfully recompleted No. 6 Blanchard a few days ago and this former upper zone producer was returned to production doing 1,390 bbls. initially from 7,900 feet. This well has had a rather interesting career as it was originally finished doing 3,320 bbls. per day from the Nordstrum zone at 5,789 feet in November 1928 and subsequently recompleted in May 1929 doing 3,740 bbls. daily from the O'Connell zone at 6,527 feet.

Long Beach

The crude oil curtailment program which brought daily production of the Long Beach Field down to around the 100,000 bbl. mark for the first time since October 30, 1927, at which time field production started a consistent increase from month to month due to progressive deeper drilling. Production in this field gradually increased and subsequently attained an output of 203,000 bbls. on July 25. The daily output remained relatively stable for several months and the field was still producing approximately 170,000 bbls. per day when conservation work was undertaken early this month. Several wells were put on production in this district during the past week but none was unusually large. The best producer finished was No. 21 Signal of the Hancock Oil Co., which showed an initial of 740 bbls. of unusually clean 23.4 gravity oil from the shallow zone at 4,243 feet, the hole having been finished with a 6⅝-inch liner carrying 101 feet of perforated. Warren & Macrate's No. 2 Neet was somewhat smaller as it tanked 470 bbls. of 27.4 gravity oil daily from the deep zone. This well, a former upper zone producer originally finished doing 1,690 bbls. per day from 5,850 feet in July, 1928, was recompleted several days ago after being redrilled and deepened to 6,234 feet. The Petroleum Securities successfully finished No. 1 Young in the southeast end of the field where considerable deeper drilling has been under way during the past seven months and this new producer, bottomed at 7,303 feet and finished with a 4½-inch combination string, is producing 440 bbls. of 28.6 gravity oil daily. Several new wells are scheduled to get under way in this limited area and some now drilling are scheduled for early completion. In the older area the Axis Oil Co.'s No. 2 Windemere was given a production test at 7,439 feet but it failed to respond to swabbing operations far as oil is concerned, although it is making approximately 1,200,000 feet of natural gas daily.

Elwood

Another good well was finished in the Elwood Field of Santa Barbara County when the Bankline Oil Co. brought in its well No. 1 on tideland drilling per-

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily avge.	Total last week	Daily avge.	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	997,250	2,988,419
Fuel oil	11,650	1,664	.....	.....	468,825	143,471
Diesel and gas oil	63,279	9,040	65,028	9,290	2,427,991	1,745,589
Gasoline	317,020	45,289	730,661	104,380	18,333,177	12,639,535
Kerosene	.....	.....	.....	.....	49,750	.....
Naphtha distillate	.....	.....	.....	.....	81,750	339,100
Coastwise—						
Crude oil	74,080	12,011	370,811	52,973	23,550,084	21,443,530
Fuel oil	370,331	52,904	545,991	77,999	17,440,063	15,007,550
Diesel and gas oil	73,000	10,429	19,497	2,785	1,135,186	1,011,975
Gasoline	173,973	24,853	227,363	32,480	9,748,609	8,365,520
Kerosene	.....	.....	299	43	70,286	66,757
Naphtha distillate	.....	.....	.....	.....	.....	171,566
Exports—						
Crude oil	132,175	18,882	216,807	30,972	5,358,802	1,958,932
Fuel oil	694,341	99,192	385,836	55,119	16,551,252	19,997,955
Diesel and gas oil	6,367	910	81,394	11,628	2,363,216	2,033,938
Gasoline	396,768	56,681	277,333	39,619	10,918,078	6,722,000
Kerosene	92,744	13,249	105,480	16,497	2,904,789	3,719,590

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	418,188
Gasoline	.....	.....	80,141	11,449	2,131,183	2,000,060
Lubricants	.....	.....	.....	.....	138,706	277,151
Coastwise—						
Fuel oil	.....	.....	32,000	4,571	2,724,971	3,054,074
Diesel and gas oil	.....	.....	.....	.....	360,538	279,197
Gasoline	144,511	20,644	68,627	9,804	4,499,071	4,320,382
Kerosene	.....	.....	2,097	300	188,893	214,441
Exports—						
Crude oil	.....	.....	.....	.....	121,603	96,250
Fuel oil	.....	.....	63,025	9,004	841,631	2,063,154
Diesel and gas oil	66,475	9,496	.....	.....	393,132	56,180
Gasoline	14,736	2,105	175,580	25,083	4,985,677	3,954,277
Kerosene	.....	.....	.....	.....	528,060	625,977
Lubricants	.....	.....	.....	.....	29,795	33,535

MT. PLEASANT FIELD PRODUCTION ECLIPSES MUSKEGON DISTRICT

By Special Correspondent

MUSKEGON, Mich., Nov. 16.—The Mount Pleasant Field of Central Michigan again led the State in the amount of new oil production although there were fewer completions than in the declining Muskegon Field of western Michigan last week.

Two Pure Oil Co. wells which had an initial flow of 500 and 350 bbls. a day, respectively, were the only completions in addition to the Stork Oil Co.'s No. 4 J. Coon, SE NE, Section 12-14n-3w, Chippewa Township, Isabella County, which was an initial 1,000-bbl. producer in the Dundee at total depth of 3,535 feet. Pure Oil Co.'s No. 4 J. Fox, NE NE, Section 13-14-3, Chippewa Township, was a 500-bbl. initial producer in the Dundee at total depth of 3,590 feet. Its No. 3 W. D. Gibson, SW NW, Section 12-14-3, made 350 bbls. initial at 3,582 feet in the Dundee.

J. O. Spracklin's No. 1 McClintic-Hood in Geneva Township, Midland County, NW NE, Section 29-15n-2w, was a disappointment when it struck bottom salt water and was plugged at 3,677 feet. It had a good show of oil before striking water.

Eight new locations were issued. The new Pure company permits are: No. 1 Arthur N. Ward, SW SE SW, Section 7-14n-2w, Greendale Township, Midland County; No. 1 Gibbs-Gordon, NW NW NW, Section 7-14-2, Greendale Township; No. 4-C Glen M. Reem, SW NE SW, Section 7-14-2; and No. 1 John Englehardt, SW NE SE, Section 36-16n-9e, Fair Haven Township, Huron County. The last of the four is one of the first genuine wildcat wells drilled by the Pure company since the opening of the Mount Pleasant Field two years ago. Several edge wells have been drilled by the company and one deep test included was dry.

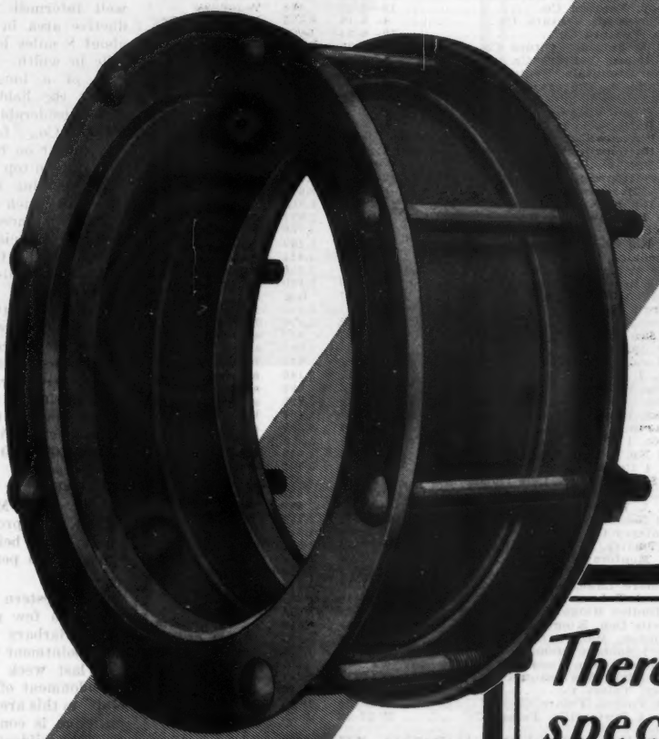
Two independent companies each made two locations: The Stork Oil Co.'s Nos. 5 and 6 Stilgenbauer, and Russell and others, SW NE NE and SW NE NE, Section 12-14-3, Chippewa Township, Isabella County, and the Sias Oil Development Co.'s Nos. 3 and 4 Carpenter heirs, SE SW SW and NE SW SW, Section 7-14-2, Greendale Township, Midland County. The No. 1 Johnson well of the West Virginia Oil Producing Co. was changed for a new permit for No. 1 John Roethlisbery, NE SW NE, Section 24-13n-4w, Lincoln Township, Isabella County, a wildcat location.

Muskegon Field

Five wells completed in Muskegon in the Dundee, lower and upper Traverse sands made 475 bbls. initial production or an average of nearly 100 bbls. each. The largest was the Lima Oil Corp.'s No. 5 Louis P. Haight, NE SW, Section 9-10-16, making 200 bbls. initial in the

(Continued on Page 135)

DAYTON
PIPE LINE REQUIREMENTS



There is no pipe line specification or service demand that a DAYTON product cannot successfully meet.

THE
NATIONAL SUPPLY
COMPANIES

mit No. 89 flowing 3,840 bbls. of clean 38.6 gravity oil daily from 3,615 feet. This well is the sixteenth producer to be finished in the Elwood Field and is the fourth project to be completed out in the open ocean on tideland drilling permits. The other three producing wells completed out in the open ocean beyond the shore line are the Pacific Western's well No. 1 on drilling permit No. 92, which is doing 3,515 bbls. per day and the Barnsdall's No. 1 on tideland permit No. 88 flowing 2,450 bbls., and the same company's No. 1 on permit No. 94 doing 3,450 bbls. daily. With the exception of the Barnsdall and Rio Grande, the Bankline and Pacific Western are the only companies to finish producing wells in the Elwood Field, although a check indicates the probability that Caroline Spalding and the Honolulu Consolidated may also get production in the near future. The Barnsdall and Rio Grande, discoverers of the Elwood Field, will also add new completions from time to time, one of which should be tanking oil within a few weeks.

Two wells were put on production in the Rincon Field of Ventura County, both standing to the credit of the Chanslor-Canfield Midway Oil Co. The largest was No. B-2 Hobson, recompleted flowing 635 bbls. of clean 29.9 gravity oil daily after being redrilled and deepened to 3,321 feet. This well was originally finished in June 1928 doing 590 bbls. per day from 2,975 feet. No. B-8 Hobson, the other producer finished by the Chanslor-Canfield Midway Oil Co. at Rincon was a new well registering an initial of 305 bbls. daily from the deep zone at 4,189 feet. Completions in the Rincon Field have been relatively few during the past year due to the small amount of development work undertaken. The most interesting well under way at present is the General Petroleum's No. 2 Ferguson, a tideland drilling project located out in the open ocean beyond the tideline. In order to prosecute this tideland development the General Petroleum has built a 1,700 foot wharf of steel construction costing approximately $140,000. A derrick has already been erected and rotary equipment is at present being rigged up. George F. Getty completed No. 1 Sandoma, a new well in the Summerland Field of Santa Barbara County, several days ago but it only showed 75 bbls. daily from 1,174 feet. Drilling operations have slowed up somewhat during the past few weeks due to the absence of pipe line facilities.

Seal Beach

The Continental Oil Co., which actually curtailed its production in the Seal Beach Field 8,000 bbls. a day in conformity with conservation work, successfully completed No. 18 Selover a few days ago. This new producer, completed in the deep Wasem zone and finished with a 6⅝-inch oil string carrying 846 feet of perforated, registered an initial of 580 bbls daily. In addition to effecting a 30 per cent reduction in production, the Continental has also restricted drilling operations. It is probable, however, that the company will keep two strings of tools in operation on the Rixby and Selover properties because of lease requirements. The Standard and Associated also effected a 30 per cent reduction in daily production.

The Standard Oil Co. finished No. 63-B, a new well in the Huntington Beach Field of Los Angeles basin, but it was somewhat of a disappointment as the initial pumping was only 95 bbls. daily. This project was carried down to 4,690 feet and finished with a 9-inch oil string carrying 713 feet of perforated. The Invader Oil Co., which has been working on a projected deep test, No.1 Mills, for the past few months, temporarily concluded drilling operations at 6,210 feet and has put in a bridge at 4,930 feet in order to make a bid for production in the upper zone. The Continental Oil Co. is starting two new wells in the Richfield district of Los Angeles basin and actual spud is anticipated soon. The Continental's last completion in this field was No. 1 Stern, which resulted in a 145 bbl. pumper from 4,625 feet.

There were no completions listed in the Midway-Sunset Field of Kern County but several potential producers should be finished in the very near future. The Chanslor-Canfield Midway Oil Co.'s No. 85 in Section 8-32-23 blew in several days ago from 2,958 feet but subsequently sanded up before making any considerable amount of oil. The heavy gas pressure encountered blew out a valve just before the well died and with this favorable indication the company is looking for at least a 1,000-bbl. producer when it is returned to production. Drilling operations have shown a consistent increase out in the Maricopa flats section of the Midway-Sunset Field for several weeks and a number of new wells should begin making hole shortly. In the Fruitvale Field of Kern County the Western Gulf Oil Co. finished No. 2 Sweitzer flowing 482 bbls. of 21.6 gravity oil per day from an even 4,000 feet, the hole having been completed with an 8⅝-inch oil string carrying 120 feet of perforated. It is probable the Western Gulf will finish another well in this area within a few days as No. 2-C in Section 28-29-27 is scheduled for an early test. The Union Oil Co. finished two new wells in the Mount Poso Field of Kern County, both located on the Tribe lease in Section 28-27-28. No. 5 was good for 110 bbls. per day from 1,675 feet, while No. 7 showed an intial of 180 bbls. daily from 1,655 feet. The Shell will probably list an additional completion in this field shortly as No. 2 Glide in Section 15-27-28 has just been passed for production. The Shell is also expected to list several completions in the Round Mountain Field during the next 60 days as it is starting five new holes on the Jewett and Freeman leases.

Kettleman Hills

Recent developments in the Kettleman Hills Field of Kings County indicate the probability that the north dome will be considerably narrower than many expected. This is evidenced by the fact that No. 1 Robinson of the Petroleum Securities has already passed the 8,185 foot level without getting production. This well, in Section 14-22-17, is on the south flank of the structure and may have to go to 9,000 feet in the light of recent developments if the hole is perpendicular. Operators have been watching the outcome very closely because a dry hole would slow up future drilling operations in the immediate locality, especially since it costs at least $225,000 to drill a deep hole in this field.

The failure of the Petroleum Securities to get production above the 8,000 foot level confirms the opinion of several well informed operators that the productive area in the north dome will be about 8 miles long and a little over one mile in width. This indicates the existence of a long narrow structure and makes the holdings of some companies look considerably better. The Continental Oil Co., for instance, with 1,440 acres right on the apex of the structure, is sitting on top of the world. Other companies having acreage down the flanks are not in such a favorable position. Any limitation placed on the productive area will be especially unfavorable to the Standard Oil Co. because this concern owns every alternate 640 acres in fee. This company is the largest holder of acreage at Kettleman Hills and has of course the largest amount of potentially productive acreage along the strike and should develop a production in excess of any other operator. The most prolific well finished in the Kettleman Hills Field is the Continental's No. 8 Elliott, which is flowing 6,775 bbls. of 60.2 gravity oil and 160,000,000 feet of natural gas daily. This producer has yielded more than $500,000 profit since completion in September. The Milham's discovery, No. 1 Elliott, has produced 1,114,642 bbls. of crude since being completed. This oil brings $1.65 per barrel.

Wildcats

The Western Gulf's No. 2 Hollister, a wildcat a few miles west of Gaviota in Santa Barbara County, proved a distinct disappointment when put on a production test last week and it may lead to the abandonment of exploration work by the Gulf in this area as far as the Hollister anticline is concerned. No. 1 Hollister, the first wildcat drilled on this structure, blew in as a gasser but was subsequently abandoned as a duster in the Sespe formation. No. 2 showed oil and gas but came in flowing 2,000 bbls. of salt water from the Vaqueros at 3,200 feet upon being drilled out. The General Petroleum hopes to have a little better luck with No. 2 More, another Santa Barbara wildcat which is drilling on a structure near Goleta, which, like that at Gaviota, showed a considerable amount of natural gas in the initial well. The General Petroleum's first test on the More structure showed such a heavy gas pressure that work had to be suspended and a second hole started. The General Petroleum has already opened up one new field at Capitan along the seacoast in Santa Barbara County this year and may duplicate this performance at Goleta. The O. C. Fields Gasoline Co. has taken over the System Oil Co.'s wildcat at Bradley and this hole, which showed some favorable indications several weeks ago, will be carried down for a deep test. The Shell Oil Co. is starting work on a semiwildcat in the Santa Maria Basin and actual spud will

(Continued on Page 143)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	2,250	br. sh. drilling
Western Gulf, No. 2 Gaviota, Santa Barbara Co.	X- 5-33	3,200	to abandon
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	2,609	redrilling
Standard, No. 1 Point Arguello, Santa Barbara Co.	35- 6-36	2,042	redrilling
Gaviota Oil Co., No. 1 Lompoc, Santa Barbara Co.	9- 7-35	2,677	hd. sd. drilling
Calif. Oil Prop., No. 1 San Marcos, Santa Barbara Co.	3- 4-28	3,050	sespe-drilling
Carey, A., No. 1 Goleta, Santa Barbara Co.	1- 4-28	1,790	set pipe
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas well—idle
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	2,891	sd. sh. drilling
Petroleum Securities, No. 1 Goleta, Santa Barbara Co.		5,280	abandoned
Standard, No. 2 Goleta, Santa Barbara Co.		306	sd. sh. drilling
Tannehill, L. B., No. 1 Elwood, Santa Barbara Co.	24- 4-29	3,680	sd. sh. drilling
Standard, No. 1 County Farm, Santa Barbara Co.	11- 4-28	946	sd. sh. drilling
Fields Gasoline Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	4,385	br. sh. drilling
Keystone Oil Co., No. 1 Santa Maria, Santa Barbara Co.	33-10-34	4,250	suspended
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	3,590	br. sh. drilling
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	1,703	sd. sh. drilling
Gilmore Oil Co., No. 1 Gibraltar, Santa Barbara Co.	1- 5-28	Rig	rigging up
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	1,160	sd. sh. drilling
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	4,130	gas well—idle
Continental, No. 2 Carpenteria, Santa Barbara Co.	33- 4-25	4,560	fishing
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	8,183	redrilling
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	1,172	hd. sd. drilling
Associated, No. 1 Rincon, Ventura Co.	19- 4-24	mtl.	building rig
Miley, E. J., No. 2 Red Mountain, Ventura Co.	7- 3-23	1,870	suspended
Frank Oil Co., No. 1 Fillmore, Ventura Co.	35- 4-20	2,168	suspended
Continental, No. 3 Sulphur Mountain, Ventura Co.	21- 4-22	5,204	hd. sd. drilling
Lockwood Oil Co., Well No. 1, Ventura Co.	28- 8-21	680	hd. sd. drilling
Milham Explt'n., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well—idle
Milham Explt'n., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well—idle
Milham Explt'n., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well—idle
Milham Explt'n., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well—idle
Milham Explt'n., No. 5 Buttonwillow, Kern Co.	5-28-23	2,600	gas well—idle
Milham Explt'n., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well—idle
Milham Explt'n., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Explt'n., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well—idle
Milham Explt'n., No. 9 Buttonwillow, Kern Co.	8-28-23	4,912	redrilling
Milham Explt'n., No. 10 Buttonwillow, Kern Co.	8-28-23	2,672	suspended
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	3,768	hd. sd. drilling
Elmer Oil Co., No. 1-A Rosedale, Kern Co.	33-29-26	5,260	suspended
General Pet., No. 1 Rosedale, Kern Co.	23-29-26	4,411	br. sh. drilling
The Texas Company, No. 1 Edison, Kern Co.	23-29-29	2,950	sd. sh. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	cleaning out
McVey, Max, No. 1 Jasmine, Kern Co.	23-25-27	Rig	idle
Shell Oil Co., No. 1 Lerdo, Kern Co.	5-29-27	5,950	hd. sd. drilling
Union, No. 2 San Emidio, Kern Co.	5-10-21	3,690	hd. sd. drilling
Mallery, Willard, No. 1 San Emidio, Kern Co.	9-10-23	477	sd. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	2,606	suspended
Knudsen, John, No. 1 Jacalitos, Fresno Co.	14-21-14	617	bl. sd. drilling
Rio Grande Oil Co., No. 1 Kerman, Fresno Co.	31-13-17	3,146	sd. sh. drilling
Petroleum Securities, No. 1 Huron, Fresno Co.	20-20-16	695	suspended
Petroleum Securities, No. 2 Huron, Fresno Co.	28-20-16	6,790	gr. sd. drilling
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	4,132	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	4,800	gr. sh. drilling
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	34-31-15	2,212	pipe froze
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-31	4,019	cleaning out
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	27-27-11	3,742	suspended
Latin American, No. 1 Shandon, San Luis Obispo Co.	31-27-15	3,916	plug back
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	690	hd. sd. drilling
Kuhns, H. L., Well No. 1, Merced Co.	8-12-19	660	suspended
Foster & Hammil, Well No. 1, Alameda Co.	21- 3- 3	1,170	hd. sd. drilling
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	4,916	sd. sh. drilling
Chessher, H. B., No. 1 Dudley, Monterey Co.	8-22- 9	245	suspended
Union, No. 1 King City, Monterey Co.	8-22- 8	2,408	br. sh. drilling
Standard, No. 1 King City, Monterey Co.	23-22- 7	2,460	br. sh. drilling
Penn Western, No. 1 Tulare Lake, Kings Co.	24-21-18	1,338	set pipe
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,305	gas well-sh. in
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,911	sd. sh. drilling
Porter, H. B., No. 1 Devils Den, Kings Co.	9-24-17	2,340	br. sh. drilling
Getty, Geo. F., No. 1 Button, Madera Co.	18-13-16	1,140	sd. sh. drilling
Twin State Oil Co., No. 1 Soldani, Mendocino Co.	14-12- 7	1,238	sd. sh. drilling
Elmer Oil Co., No. 1 Timbers, San Joaquin Co.	6- 3- 9	...	location
Barnhart Trust, No. 1 Oakdale, San Joaquin Co.	3- 2-10	1,714	sd. sh. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	2,377	suspended
Terminal Oil Co., No. 1 Tulare, Tulare Co.	29-20-25	3,416	br. sh. drilling
Terra Bella Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	mtl.	building rig

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ohio Oil Co., No. 1 Del Rey, Los Angeles Co.	21- 2-15	6,199	sd. cuts oil
Marblehead Land Co., No. 1 Santa Monica, Los Angeles Co.	1- 2-19	1,894	sd. sh. drilling
Clearwater Oil Co., No. 1 Bellflower, Los Angeles Co.	21- 3-12	1,149	sd. sh. drilling
Continental, No. 1 Alamitos, Los Angeles Co.	34- 4-12	3,318	hd. sd. drilling
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	2,204	cleaning out
Big Boy Drlg. Co., No. 1 Compton, Los Angeles Co.	22- 3-13	mtl.	building rig
Hanners, George, No. 1 Watts, Los Angeles Co.	8- 3-13	2,960	sd. sh. drilling
Cal. Well Drlg. Co., No. 1 Compton, Los Angeles Co.	11- 4-13	8,500	recemented
Archer Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	3,990	gr. sd. drilling
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	23- 3-17	2,418	gr. sh. drilling
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,220	cleaning out
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	2,702	sd. sh. drilling
The State Co., No. 1 Puente, Los Angeles Co.	5- 2-10	2,254	hd. sd. drilling
Urmi Oil Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	1,511	gr. sd. drilling
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	1,280	hd. sd. drilling
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3- 9	1,780	br. sh. drilling
Superior Oil Co., No. 1 Richfield, Los Angeles Co.	32- 3- 9	3,050	sd. sh. drilling
Coastline, No. 1 Devils Canyon, Los Angeles Co.	21- 5-17	1,615	gr. sd. drilling
Martin, J. W., No. 1 Newhall, Los Angeles Co.	22- 1-17	661	gr. sd. drilling
Consolidated Oil Co., No. 1 Newhall, Los Angeles Co.	22- 3-16	316	sd. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	688	cemented
Shell, No. 1 Bolsa, Orange Co.	18- 5-11	1,040	cemented
Shell, No. 1 Coyote, Orange Co.	26- 3-10	6,050	redrilling
Standard, No. 1 Coyote, Orange Co.	21- 3-10	1,015	sd. sh. drilling
Beard, G. F., No. 1 Brea Canyon, Orange Co.	30- 2- 9	1,000	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	3,914	recemented
Oil Well Eng. Co., No. 1 Newport, Orange Co.	21- 6-10	2,795	testing
Oil Well Eng. Co., No. 2 Newport, Orange Co.	21- 6-10	mtl.	suspended
Hall Pet. Co., No. 1-A Murrietta, Riverside Co.	28- 7-3	701	cemented
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,403	suspended
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,980	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	3,005	sd. sh. drilling
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,050	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	X-13- 4	1,095	sd. sh. drilling
China American Oil Co., No. 1 Oasis, San Bernardino Co.	17- 4- 4	mtl.	suspended
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,390	hd. sd. drilling
Duncan, N. I., No. 1 Mojave, San Bernardino Co.	8- 4- 6	Rig	rigging up

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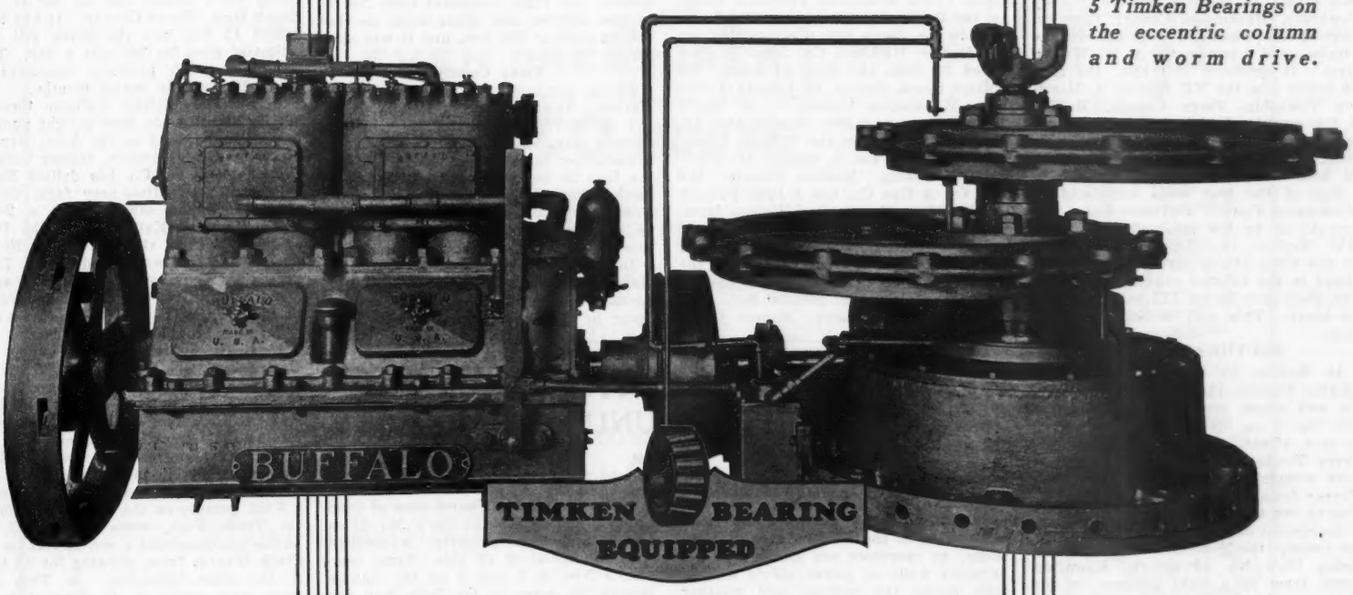

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TIMKEN *Tapered Roller* **BEARINGS**

Unusual Wells in Southeast Ohio

West Virginia Has 100-Bbl. Completion, First in Several Months. Muskingum County Has 200-Bbl. Well

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Nov. 18.—The week of development work in the eastern fields was more fruitful of good producers than for a number of months. Not so many wells were completed as during the previous week, but the average size was considerably higher. All of the good wells, except one are in the deep sand territory in southeast Ohio. In the SW Section 3, Clay Township, Muskingum County, Crowley, Carr & Co. completed and shot in the Clinton sand a test on the A. W. Wigton farm. It produced 200 bbls. the first 24 hours. In the NE Section 4, Harrison Township, Perry County, McClay & Co. completed and shot in the same formation a test on the Ida Ramsbottom farm. It produced 120 bbls. the first 24 hours.

One of the best wells completed in Muskingum County, southeast Ohio, was brought in by the Midland Oil Co. in NW Section 18, Hopewell Township, on the Elam Denny farm. It was completed in the Clinton sand at 3,175 feet and after shot flowed 175 bbls. the first 24 hours. This well is No. 3 on this farm.

SOUTHEAST OHIO

In Section 10, Fallsbury Township, Licking County, the Emerald Petroleum Co. and others completed in the Berea grit No. 7 on the J. E. Martin farm. It is a 15-bbl. pumper. In Section 1, Perry Township, Hulse & Kundtz, Inc. have completed No. 11 on the Joseph Chaney farm. It is dry in all sands, including the Clinton sand.

In Section 35, Bethel Township, Monroe County, the Hope Construction & Refining Co.'s No. 12 on the Knowlton heirs' farm is a light pumper in the Squaw sand. In Section 3, same township, the Indian Run Oil & Gas Co. completed in the Berea grit No. 3 on the Anna Holiday heirs' farm. It is a light gasser, good for not more than 200,000 feet a day.

In Section 19, Lee Township, Athens County, Townsend & Co. are drilling a second test on the Emma Marcum estate. In Section 5, Knox Township, the Powers Oil & Gas Co. is drilling on the Cameron S. Clark farm.

In the NE Section 4, Hanover Township, Perry County, Wallsmith & Kensell completed and shot in the Clinton sand a test on the Edward Stoneburner lots. It produced 155 bbls. the first 24 hours.

In Section 14, Licking Township, Licking County, W. Patten & Co. completed No. 10 on the George Cotterman farm. It produced 15 bbls. the first 24 hours after shot in the Berea grit. In Hanover Village, Section 14, Hanover Township, the Werley Co. completed a test on the McKnight & Ryan lots. It is a 15-bbl. pumper in the Clinton sand.

New Work in Meigs County

In the NE Section 19, Sutton Township, Meigs County, the Twenty-Five Association, Inc., has started to drill on the New Pittsburgh Coal Co.'s property. In Section 12, same township, the same company has started to drill on the J. E. Stobert farm.

In Section 4, Harrison Township, Perry County, Kinsell & Co. completed and shot in the Clinton sand a test on the Edward Stoneburner farm. It had an initial production of 155 bbls. In the NE Section 4, Harrison Township, McClay Brothers & Co. completed a test on the Ida Ramsbottom farm. It produced 120 bbls. the first 24 hours. In Section 4, the Leonard Oil & Gas Co. completed a test on the Prudence Larzelere farm. It is a 35-bbl. producer in the Clinton sand.

In Section 6, Clarke Township, Coshocton County, the Ohio Oil Co.'s No. 3 on the F. J. Mullet farm produced 52 bbls. the first 24 hours. In Section 10, Liberty Township, Washington County, C. E. Smith & Co. got a 100,000-foot gasser in the Big Injun sand at No. 7 on the William Greathart farm.

Jefferson and Washington Counties

In the northeast quarter of Section 12, Cross Creek Township, Jefferson County, the Decker Oil Co. has completed and shot in the Berea grit a second test on the Decker Highland Co. farm. It produced 25 bbls. the first 24 hours. On Fifteen Creek, Section 10, Liberty Township, Washington County, C. E. Smith & Co. have a gasser in the Big Injun sand at N. 7 on the William Greatheart farm. In Lot 3, Section 10, Chatham Township, Medina County, the Oko Oil & Gas Co. has a light pumper at No. 32 on the Sanford-Watson farm.

The Preston Oil Co. completed its test on the George Beckley farm, Section 2, Jackson Township, Knox County, to the Clinton sand at 3,280 feet and have a gasser good for about 500,000 feet.

In Malaga Township, Monroe County, two dusters were reported. The first was the test drilled on the Jacob Riemenschneider farm, northwest quarter, Section 6, by W. C. McBride, Inc. It was drilled to the Keener at 1,488 feet and dry. It showed for a fair gasser in the Big lime. C. W. Paine and others completed their test on the M. J. Steward farm, southwest quarter of Section 30, on a town lot in Jerusalem, to the Keener at 1,530 feet and it made no showing.

In Section 76, on Good Hope Ridge, Salem Township, Washington County, Meister and Blair completed their No. 7 on the Meister and Blair farm to the Maxon sand at 860 feet, and it was also dry.

Perry County

In the northeast quarter of Section 4, Harrison Township, Perry County, Kensell & Co. completed and shot in the Clinton sand a test on the Edward Stoneburner farm. It produced 155 bbls. the first 24 hours. In Section 20, Newcastle Township, Coshocton County, Preston Oil Co. completed a second test on the Sanford McClain farm. It produced 120 bbls. the first 24 hours.

In the southwest quarter of Section 4, Harrison Township, Perry County, the Leonard Oil & Gas Co. got a 35-bbl. producer in the Clinton sand on the Prudence Larzellere farm. In Section 4, Clarke Township, Coshocton County, the Ohio Oil Co. completed in the Clinton sand No. 3 on the F. J. Mullet farm. It produced 52 bbls. the first 24 hours.

At Bollin Mills, Section 4, Knox Township, Vinton County, the Powers Oil & Gas Co. completed No. 3 on the Cameron S. Clarke farm. It is a 3-bbl. pumper in the Berea grit.

WEST VIRGINIA

West Virginia had a better than average well, the Hope Construction & Refining Co.'s second test on the H. W. Enoch farm, Roane County. It has been drilled 12 feet into the Berea grit and estimated good for 100 bbls. a day. This is the first fair producer completed in West Virginia in many months.

In Sheridan district, Calhoun County, W. H. Bickel & Co. have a light pumper in the Maxon sand on the Amos Kenney farm. In Center district, Gilmer County, the Chartiers Oil Co. has drilled No. 3 on the Baptist Missionary farm deeper into the Maxon sand. It is a 2-bbl. pumper. In DeKalb district, the Philadelphia Natural Gas Co. has a 10-bbl. pumper in the Maxon sand at No. 7,358 on the M. E. Batson farm. In the same district, C. B. Lewis & Co. have a 5-bbl. pumper in the Keener sand at a second test on the J. A. Kelly farm.

In Geary district, Roane County, the United Fuel Gas Co.'s No. 4,035 on the D. A. Griffith farm is a gasser in the Salt sand. In Spencer district, the Federal Oil Co.'s No. 48 on the Provident Mining Co.'s tract is a gasser.

On the waters of Trace Fork, DeKalb district, Gilmer County, C. B. Lewis and others have completed in the Big Injun a 5-bbl. pumper on the Clyde Amos farm. On Trace Fork, same district, C. B. Lewis has completed a second test on the Clark Weaver farm, showing for 15 bbls. in the same formation. In Troy district, same county, C. M. Bennett & Co. completed in the same formation on the Henry L. Lamb farm a gasser good for 1,600,000 feet.

Tyler County

In Lincoln district, Tyler County, the Oakland Oil Co.'s test on the S. J. Langster farm is a gasser in the Big Injun sand. In Battelle district, Monongalia County, Eddy, Johnson & Co. have a Big Injun sand gasser on the W. L. Fox farm.

In Carroll district, Lincoln County, the United Fuel Gas Co. has a gasser in the Berea grit at No. 4,010 on the Margaret Jaynes farm. In the same district, the Allegheny Gas Corp. has a gasser in the same formation at No. 4 on the C. A. Curry farm. In the same district, L. R. Sweetland has a Berea gasser at No. 48 on the L. R. Sweetland farm.

In Scott district, Boone County, the Mountain State Fuel Co. has a gasser in the Berea grit on the Rome Prince farm. In Washington district, same county, the Hope Natural Gas Co.'s No. 7,429 on the J. D. Allen farm is a gasser. In the same district, the Owens Bottle & Machine Co. has a Berea grit gasser on the Lewis R. Bias farm.

In Geary district, Roane County, the South Penn Oil Co. completed No. 100 on the O. D. Stockly farm, good for 15 or 20 bbls. a day, after shot. In Sherman district, Calhoun County, C. B. Lewis completed in the Big Injun sand a 10-bbl. pumper on the Sycamore Baptist Church lot. It is on Sycamore Creek.

In Sherman district, Calhoun County, the Sycamore Fuel Co. completed a second test on the L. S. Morris farm. It is a 15-bbl. pumper in the Big Injun

(Continued on Page 198)

WESTERN AREA OF KENTUCKY REPORTS UNUSUAL ACTIVITY

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Nov. 18.—Unusual activity has prevailed the past week or so in the western area of Kentucky, as operators are anxious to get as many wells on power plants as possible before the extreme cold weather comes. The western portion of the State is increasing its production to a large extent, as the total runs made from wells served by the Illinois Pipe Line Co. in western Kentucky during October totaled 407,187.75 bbls., the largest runs yet made by this company from that area. This does not include the runs of the Producers Pipe Line Co., which makes no reports of oil handled through its lines, nor the tank shipment of the Aetna Refining Co. from other points not reached by the two pipe lines.

Very little development work is under way in the eastern part of the State. The Petroleum Exploration Co. and the Wiser Oil Co. have purchased the leases from the Model Oil Co. in Magoffin County, comprising the J. W. Lemaster farm lease of 227 acres, with 27 wells; W. L. Bailey 20 acres with five wells, and the J. L. Patrick four acres with one well.

Week's Work

A summary of the week's work in Kentucky shows 52 completions, 35 producers with an initial production of 1,408 bbls., 11 dry holes and 6 gas wells.

County—	Comp.	Oil wells	Prod.	Dry	Gas
Ohio	36	24	933	8	4
Daviess	12	8	433	3	1
McLean	1	1	20	0	0
Warren	1	1	12	0	0
Hancock	1	1	10	0	0
Clay	1	0	0	0	1
Total	52	35	1,408	11	6

Ohio County Wells

The late producers in the Ohio County pools were not as heavy producers as a short time ago, especially in the Barnett's Creek Church Pool, owing to the great amount of oil already taken from the Stray sand of that field.

In the Friendship Church area of Ohio County, the Wood Oil Co.'s No. 1 on Denton-Admonson property, is credited with an initial of 40 bbls. Same company's Nos. 6, 7 and 8 on the Nannie Rogers 151 acres, in the Bells Run district, are reported with initials of 30, 35 and 40 bbls. respectively. Same company's No. 12 J. W. Mattox farm was dry at 985 feet.

The Friendship Church area is now one of the most active portions of Ohio County. H. L. Ogle and others' No. 8 on the Royal heirs farm produced an initial of 60 bbls. Same parties' Nos. 10 and 11 on the P. T. Royal 40 acres produced 65 and 50 bbls. initial. Roy P. Baker and others' No. 6 on the T. P. Royal 60 acres is good for 30 bbls. T. P. Royal and others' wells on the T. P. Royal 40 acres, Nos. 7, 8 and 9, produced 15, 20 and 25 bbls. respectively. James C. Ellis and others' No. 3 on the Royal heirs 100 acres, developed a duster.

In the Barnett's Creek Church Pool, the Rex-Pyramid Oil Co.'s No. 14 well, 450 feet from the south line and 750 from the east line of the Sally Hoover farm, produced 75 bbls. initial.

Missouri-Kansas Pipe Line Co. found a gas well in a stray sand on the Reat Haynes farm, in the Deanfield area, that came in with a volume of 800,000 feet. Same company's Nos. 2 and 3 on the S. T. Whitley lease are reported around 750,000 feet each.

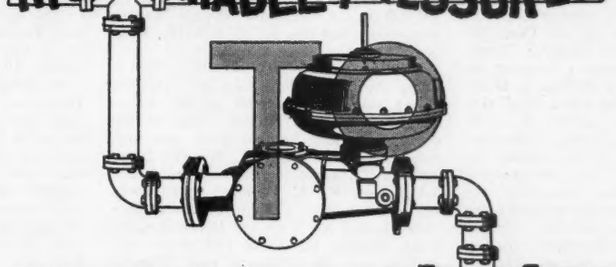
H. C. Smith Co.'s No. 7 on the Ida Kelley farm, in the Fordsville area, was dry, and on the Ida Kelley 116 acres another showed for 10 bbls.

Doctor Buckner and others' No. 1 on the Joe Cheek farm was dry in the Jett sand and was given up as a failure, having been abandoned.

Leeper Oil Co.'s No. 3 on the Tom Westerfield, in the Whittaker Pool, produced an initial of 40 bbls. In this well a string of 511 feet of casing was set,

(Continued on Page 116)

HIGH VARIABLE PRESSURES



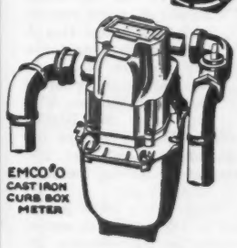
LOW EVEN PRESSURES

VIA THE EMCO ROUTE

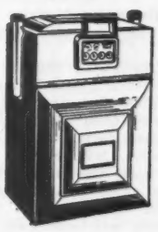
THE "Emco Route" safeguarded by careful design and painstaking manufacture, is the smoothest and most positive way from the "Sierras" of high uneven transmission pressure to the smooth and level plane of even distribution pressure.

EMCO #0 CAST IRON DRY GAS METER

IRONCLAD CAST IRON DRY GAS METER

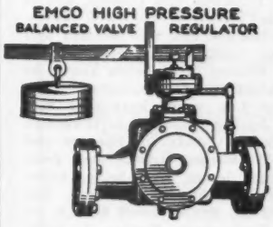


EMCO #0 CAST IRON CURB BOX METER

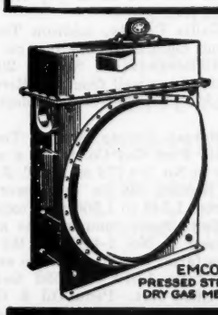


EMCO TIN METER

EMCO HIGH PRESSURE BALANCED VALVE REGULATOR



EMCO WATER HEATER AND GAS APPLIANCE REGULATOR



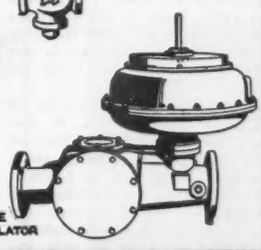
EMCO #5 PRESSED STEEL TYPE DRY GAS METER

WESTINGHOUSE FLUID POSITIVE GAS METER

EMCO LARGE CAPACITY CAST CASE DRY GAS METER WITH EMCO COMBINED RECORD GAUGE

EMCO ORIFICE GAS METER

EMCO DOMESTIC SERVICE REGULATOR



EMCO LOW PRESSURE BALANCED VALVE REGULATOR

PITTSBURGH EQUITABLE METER COMPANY

MAIN OFFICE AND WORKS PITTSBURGH, PA.

NEW YORK CHICAGO COLUMBIA, S.C. LOS ANGELES DALLAS
TULSA SEATTLE KANSAS CITY SALT LAKE CITY

Central West Completions But Normal

All Divisions Represented in List. Lucas County, Ohio, Active. Test Southwest of Gary, Ind. Dupo Declining

By Whit

Staff Correspondent, Central West Fields

FINDLAY, Ohio, Nov. 18.—All of the divisions of the Central West Field were represented in completed wells during the week, although they were only of normal size. In the old Lima Field of northwestern Ohio, the Ridge Gas & Oil Syndicate drilled a dry hole in No. 3 in the northeast corner of the Leroy Wonder, SW, Section 35, Biglick Township, Hancock County. Top of the Trenton was found at 1,382 feet and drilled into water at 90 feet in the sand at a total depth of 1,472 feet.

Real Oil Co. brought in a 5-bbl. pumper in No. 4 well in the northeast corner of the Ben Wuerwillie, SE, Section 29, Washington Township, Auglaize County, at 41 feet in the Trenton, topped at 1,192 feet.

In the Tiffin Field, Seneca County, Hopewell Township, Frank Willis drilled a dry hole 1,000 feet from the north line and 50 feet from the west line of the Frank Feasel farm, on the oil map as the M. Smith, NW, Section 2. Top of sand was 1,234 feet and drilled 298 feet into the sand, total depth 1,532 feet. The four corners about 3 miles north of Tiffin will eventually get a heavy drilling play. This corner is where four townships come together, Liberty, Pleasants, Hopewell and Clinton, and it was in the corner of Hopewell Township that the 300-bbl. well of Ash and O'Neil was recently completed on the James D. Watson farm, better known as the William Dorin farm.

The past few weeks have seen considerable leasing in the northwestern part of Lucas County, in Spencer and Richfield Townships, directly west from Toledo, and leases are being taken across the state line in Michigan. The test well of the Beaver Creek Oil Co. on the Elfa Pugh farm, Section 1, Richfield Township, is already under way.

CENTRAL OHIO

Twenty-nine completions were reported for the week in the Central Ohio fields, of which 10 were producers with an initial production of 431 bbls., 7 dry holes and 12 gas wells. Some 22 new locations were staked out with 32 wells spudding or rigging up, a total of 54. This is one of the largest gains in new work for many weeks.

Any new development in advance of production is of importance. L. B. Lee sends in a copy of the Herald-Star of Steubenville, in Jefferson County, along the Ohio River, which reads as follows:

"The Becker Oil Co., a subsidiary of Becker Highlands, drilled through the Berea sand in its No. 3 and brought in a flowing well said to be 50 bbls. capacity. The location is on the rear of Becker Highlands and the strike is attracting the attention of operators. The company's No. 1 is a 3-bbl. well, while No. 2 on the Daugherty place was a duster."

In Ashland County, Orange Township, the Ohio Fuel Gas Co.'s No. 1-4,854 Hiram Ewing, Section 33, failed to find any sand and was given up as a dry hole. Same company is drilling No. 1-4,904 P. J. Hess farm, Section 28. In Greene Township, the same company is drilling No. 2-4,905 on the Maris Jones farm, Section 20. Fetter and others drilled a dry hole on the John Herschler farm, Section 1, Milton Township, same county, failing to find any sand at 2,590 feet. John Neading and others found a showing of oil at 619-47 feet on the George Horn farm, Section 21, Lake Township, in the Berea. Fetter and others are drilling No. 3 on the Cecil W. Garst farm, Section 16, Mohican Township. Same parties made a location on the William Wile farm, Section 2, Montgomery Township. The Ohio Fuel Gas Co. made a location on the Lola B. Smith farm, Section 1, and Hulse and Kundtz are starting on the Martin H. Morr farm, Section 13, Montgomery Township. In the same township, the Ohio Fuel Gas Co. brought in a fair gas well in No. 1-4,809 on the Alva Shriner farm, Section 1. Garn-Woodward Oil Co. struck a dry hole on the Samuel Starcher farm, Section 32, Perry Township, in the Berea sand from 640-45 feet.

Medina County

In Medina County, Chatham Township, the East Ohio Gas Co.'s No. 10 on the J. and A. Jalensics farm, Lot 2, in the Chtham shallow sand field, is reported at 5 bbls. The Kemrow Co. made a location on the Frank Rhader farm, Section 4, Homer Township, same county.

In Lorain County, Eaton Township, the Ohio Fuel Gas Co.'s No. 1-4,847, on the N. H. Kerriush farm, Section 2, shows an average pressure of gas and which flowed 24 bbls. into tanks in 12 hours. Same company made a location for No. 1-4,928 on the John Koliah farm, Lots 46 and 47, Grafton Township. In Penfield Township, E. S. Newcomb's test on his own farm, Lot 7, was dry from 167-84 feet, but found a light gas well in the shale from 460-65 feet. Wiser Oil Co. brought in a good gas well in No. 3 on the J. C. Palmer farm, Section 14, Carlisle Township, at 2,353-67 feet. In the same township, the Ohio Fuel Gas Co. is drilling No. 3-4,871 on the Julia Clark farm, Section 13, and made a location for No. 1-4,943 on the F. W. Bruce farm, Section 14, same township.

In Wayne County, the Ohio Fuel Gas Co. has a fair gas well in No. 1-4,846 on the C. W. Koffman farm, Section 2, and Harmon & George are drilling No. 1 on the C. Peter Buckholtz, Section 26, and Faulkner and others are drilling No. 1 Ashley Smyser farm, Section 25. Ohio Fuel Gas Co. made a location for No. 2-4,933 on the Mary Hagerman farm, Section 6, Congress Township.

In Holmes County, the East Ohio Gas Co.'s No. 4, on the H. and H. Bell farm, Lot 29, Hardy Township, is credited with 100 bbls. initial. Oil was found from 3,473-3,508 feet, where there was a break of 12 feet, then another oil showing from 3,520-48 feet. Same company made a location for No. 1 M. Gamble farm, Section 28, same township. Lydick Oil & Gas Co. is drilling deeper its No. 2 on the S. V. Allen farm, Section 1, Monroe Township, same county. East Ohio Gas Co. drilled in a good gas well in No. 3 on the A. E. Harford farm, Section 14, Richland Township, there being two gas pays encountered from 3,324-50 feet and from 3,360-88 feet.

Richland County

In Richland County, the Ohio Fuel Gas Co. is drilling No. 1-4,883 Sarah McFarland, Sections 27 and 28, Monroe Township, and made a location for No. 1-4,944 on the Millie Oakes, Section 26, same township.

In Knox County, Brown Township, the Ohio Fuel Gas Co. made a location for No. 2-4,934 Herbert Frank farm, Sections 5 and 12. I. E. O'Hail is drilling No. 3 R. P. Hipp farm, Section 21, Jefferson Township.

In Coshocton County, Pike Township, Spindler and others are drilling No. 5 J. Wolford farm, Section 24, and the Ohio Fuel Gas Co. made a location for No. 1-4,919 on the Carpenter, Conkle Wagers properity, Sections 8, 12 and 13, Monroe Township.

In Summitt County, Franklin Township, the East Ohio Gas Co. brought in an excellent gas well on the Adam Kepler farm, Section 13, from 3,988-4,018 feet, and another good gas producer in No. 2 John M. Weaver farm, Section 23, same township, from 4,085-4,116 feet. F. A. Brendall and others are drilling No. 2 John Steigner, Section 24, and No. 1 on the Bernard Kunz farm, Section 23. Kime and others are drilling on the William and Clement Keppler farm, Section 13, and the Stolts Oil & Gas Corp. is drilling on the R. M. McCaughey farm, same section. In Greene Township, F. A. Brendall and others are drilling on the C. Kerr, Section 18, and the East Ohio Gas Co. made a location on the Adam Lauby farm, Section 17.

In Licking County, Perry Township, H. C. Farmer has a light gas well at his second test on the Bernard Warfel farm, Section 7, from the Berea sand at 678-88 feet. Hope Construction & Refining Co. is drilling No. 4 John C. Wright, Section 15, and the Settles Oil Co. made a location for No. 6 on the Jacob Lother farm, same section. In Fallsburg Township, the Preston Oil Co. made a location for a second test on the Thomas Moran farm, Section 10, and the Whitehill Oil & Gas Co. is drilling No. 2 on the Ira T. Rine farm, Section 2. In Hanover Township, the Pure Oil Co. made a location for No. 4 Homer C. Priest farm, Section 7, and the Wehrle Gas Co. made a location on the Florence Rector farm, same township.

Muskingum County

In Muskingum County, Highland Township, H. C. Farmer has a very light gas well on the Alex McConnaughey farm, Section 10, in the upper Berea sand from 1,235 to 1,239 feet, total depth 1,265 feet. Perry Sturm and others are drilling on the George N. Wilson farm, Section 32, Newton Township. In Falls Township, the Ohio Fuel Gas Co. made a location on the J. C. Moore farm, and is drilling No. 1-4,899 on the Oleita Swan farm, same township. In Clay Township, Crawley and others' No. 1 on the Nelson-McCoy Pottery Co. property, Section 3, is credited with 170 bbls. initial from 3,444 to 3,492 feet. Same parties are drilling No. 1 Phoebe Cherry farm, same section. William Kline and others are drilling No. 2 on the Ramsbottom Pottery Co. property, same section, and Abe Snider and others are drilling No. 3 Eliza O. Beem, same section. In Union Township, the Atha Co.'s second test on the C. O. Evans farm, Section 17, has a hole full of water from 807 feet, and is termed a duster. In Perry Township, the Ohio Fuel Gas Co. made a location on the John C. Hicks farm in the third-quarter section. Wittmer Properties, trustee, is drilling on the Wilmer A. Dailey farm, Section 15, and Dr. E. C. Taylor made a location for a second test on the Fred, Ella and Mary Smitley farm, same section. The Atha Co. is drilling on the Clement L. V. Hunter farm, Section 3, Salt Creek Township, same county.

In Athens County, Ames Township, the Ohio Fuel Gas Co. made a location for No. 1-4,925 on the E. H. Bennett farm, Section 2. Same company is drilling No. 2-4,909 on the W. A. Clester farm, Section 34, Berne Township, and the Fairfield Oil & Gas Co. is drilling deeper a second test on the R. E. Wilson farm, Section 34, Lodi Township. This well was drilled into the Berea sand at 579 feet, but will go for a lower pay sand. Gifford and Glazier are drilling on the Robert Smith, Section 11, Cannon Township. Northern Development Co. is drilling on the J. W. McDonald. Section 10, Trimble Township.

In Meigs County, Sutton Township, Tyree and others' No. 7 Mary Jividen farm, Section 23, pumped 4 bbls. from the upper Berea sand from 1,717 to 1,731 feet, and No. 9, same farm, produced 5 bbls. from the same formation from 1,792 to 1,809 feet. Hazlett and others' No. 3 Bell Spencer farm, Section 11, produced 10 bbls. from the first Cow Run sand from 625½ to 645½ feet. In Chester Township, Frick and Barnaby's No. 8 Wesley Geinheimer, Section 21, was dry at 812 feet. Ohio Fuel Gas Co. got a light gas well in No. 1-4,869 on the H. E. Bradfield farm, Section 13, Scipo Township, from the Maxon sand topped at 614 feet and drilled to a total depth of 626 feet. In Bedford Township, the Ohio Fuel Gas Co. is drilling No. 1-4,881 on the John Chaney farm, Section 21, and a location for the same company on the William Thomas farm, Section 32.

Jackson County

In Jackson County, Franklin Township, the Ohio Fuel Gas Co.'s No. 1-3,512 on the E. C. Chapman farm, Section 22, was a dry hole in the Clinton from 2,532 to 2,540 feet, total depth 2,580 feet.

In Lawrence County, Symmes Township, the Ohio Fuel Gas Co. is drilling No. 1-4,892 on the D. W. Rucker farm, Section 29. Inland Oil Corp. is going deeper with its No. 6 on the Hecla Iron & Mining Co.'s property, Section 23, Perry Township. Gordon Oil Co. is drilling on the Thomas B and Rosie Shearer, Section 34, Washington Township, Tuscarawas County.

In Fairfield County, Pleasants Township, the City Natural Gas Works' No. 3 on the John Martz farm, Section 14, is a light gas well.

In Guernsey County, Wheeling Township, the North Salem Oil & Gas Co.'s No. 4 on the C. and A. Gray farm, Section 11, produced 60 bbls. initial from the Lime sand just below the top of the Niagara lime. The Niagara was topped at 3,306 feet and Lima pay from 3,474 to 3,480 feet.

In Gallia County, Addison Township, the Penn Ohio Gas Co.'s test on the W. T. McCullough farm, Section 20, made an average gas well from the Berea sand from 1,810 to 1,830 feet, total depth 1,861 feet.

In Morgan County, Marion Township, the Ohio Fuel Gas Co. found a nice gas volume in No. 2-4,778 on the T. J. Strode farm, Section 30, in the lower Berea sand from 1,549 to 1,566 feet, total depth 1,571 feet. Same company has an average gasser in No. 1-4,820 on the W. A. Thomas farm, Lot 17, from the same formation from 1,570 to 1,596 feet, total depth 1,600 feet. Penn Oil & Gas Co. has a fair gas well in No. 9 on the W. B. Hopkins farm, Section 32, in the Salt sand at from 728 to 735 feet. Lord, Shaw & Dye has a duster in No. 14 on the Alice A. Holloway farm, Section 33, same township, from the upper Cow Run sand from 318 to 327 feet, total depth 330 feet. The Kemrow Co. is drilling No. 10 Edmund Parker farm, Lot 4, and Williams Brothers are drilling No. 7 Curtis M. Ellis farm, same lot. In Penn Township the Ohio Fuel Gas Co. is drilling No. 7-4,821 on the H. C. Kennard farm, Section 3. The Kemrow Co. made a location for a second test on the Henry J. Abel farm, Lot 6.

INDIANA

Wildcat development is not bringing the expected wells in Indiana of late, but the operators are keeping up the

(Continued on Page 128)

Fisher Controllers Hold Accurate Levels

Though imitated, this direct-acting Fisher 227-A Liquid Level Control has never been equalled. To within very close limits it holds levels in tanks, absorber towers, stills and similar equipment. The 227-A mounts outside the tank. There are no internal floats or valves to fit between baffle plates —or to install through small manholes. Other types of the 220-Series are available for remote valve control. The entire series can be had with special floats, valves and trim to handle temperatures up to 750 F.—and to "lick" unusual corrosive conditions.

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Boiler Gas Fuel Governors

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Automatic Gas Relief Valves

Gas Pressure Regulators
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Ask for a copy of the Fisher Liquid Level Control Bulletin —or the Fisher Catalog which details the 1,000 and more Fisher Specialties for controlling steam, air, water, oil and gas.

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MARSHALLTOWN, IOWA

Northwest Arkansas Possibilities

Discussion of Oil and Gas Potentialities in Arkansas Valley Region—East End of Hartshorne Coal Basin

By H. D. Easton, E. M.

That portion of Arkansas from the Oklahoma state line near Fort Smith eastward to where the Paleozoics disappear beneath the Cretaceous in White County, and lying between the Boston Mountains on the north and the Ouachita Mountains on the south, has become of quite some active interest to oil operators, more especially since natural gas is in such great demand. This is a large area some 170 miles east-west by about 100 miles north-south that is rather congested with local structures and wherein the Pennsylvanian and Mississippian measures are to be prospected. Commercial gas has been produced for several years in the Fort Smith area. Why, then, has this extensive territory, so favorable in its outer aspects, been neglected; what are the prospects of finding new fields of oil and gas, and what are the drilling conditions?

Regional Conditions

The Hartshorne Coal Basin of east-central Oklahoma extends from McAlester eastward into Arkansas, crosses the state line near Fort Smith and reaches some 70 miles farther eastward to Russellville in Pope County. As its major feature, this basin is a large synclinal trough (synclinorium) dipping west but interrupted locally by numerous folds and faults.

In the western part of Arkansas and on westward to McAlester (and thence southwest to Atoka) this basin is bounded on its south side by the Choctaw Fault which has its upthrow on the south side and is a major-scale fault of but a few hundred feet break in Arkansas but of several thousand feet farther west in Oklahoma.

Although the coal measures do not cover many counties in Arkansas, the underlying Pennsylvanian and Mississippian beds are the surface rocks over many counties as noted above. This large basin has its deepest portion, its east-west synclinal axis, along the Arkansas River which cuts through the coal measures from Fort Smith to Russellville. From this synclinal axis the beds rise to the north and to the south. The Boston Mountains form the north boundary and the Mississippian beds on and along the south flank of these mountains dip southward to the synclinal axis. Likewise, on the south the Ouachita Mountains form the south boundary and the beds from these mountains dip northward to the synclinal axis.

The area north of this synclinal axis is more favorable for oil and gas than that lying south. The Ouachita Mountains, on the south, are badly disrupted and have beds standing on edge and much faulted; over the east end of the Choctaw Fault, which is playing out in Arkansas, has disrupting influence. Local structures in this area south of the synclinal axis are sharply folded and faulted and highly metamorphosed.

The Boston Mountains, which constitute the south border of the Ozark Plateau and also the north flank of the Arkansas Valley synclinorium, are composed of beds that have but gentle south dips—in fact, nearly level. Folding and faulting are gentle, and there is but a thin section of Mississippian to be drilled before reaching the petroliferous Chattanooga shale.

The eastern portion of this large area gradually becomes less synclinal and is so confused with local folds that regional conditions are obscured but in general tend to hold the basic pattern but more nearly level. Although the coal measures do not extend east of Pope County, the underlying Pennsylvanian shales and sandstones continue eastward across White County. Any drilling done along a line from Fort Smith to White County would find great thickness of both Pennsylvanian and Mississippian measures.

Rising to the north, the Pennsylvanian beds are left before reaching the Boston Mountains while the remaining portion of Mississippian is so thin that the bit should penetrate the Devonian, Silurian and Ordovician; but drilling along the line between Fort Smith and White County would never reach the older rocks.

Activity in This Region

A gradual acceleration of interest in the oil and gas possibilities of this part of Arkansas has been noticeable for over a year, and now there are several majors and independent operators studying the region, leasing structures that look favorable and in general planning a drilling campaign. Most of the present interest is in the Boston Mountain portion lying along the north border of the basin. There are good reasons as to why this particular portion of Arkansas is foremost in interest. These reasons are being emphasized through this article and may be stated thus:

1. The drill will reach beds below the Mississippian and probably go into the Ordovician which is producing more than half the ultimate oil of both Oklahoma and Kansas. 2. Better drainage or catchment conditions, oil and gas having a tendency to migrate upward from the low portion of this great synclinorium northward to the Boston Mountains and there be trapped in any suitable structures. 3. This Boston Mountain area has less sharp folding and, as a consequence, lower carbon ratio, a factor in favor of production.

Important Factors

The writer was some time mining engineer for the Rock Island Coal Co. at Hartshorne, Okla., during which time the coal measures were studied and mapped from Coalgate to McAlester to Arkansas. Underground conditions are very real to him. More recently he has made field investigations in Arkansas eastward to White County, has studied the drilling and noted its time and cost elements, and believes he has a fair understanding of the major problems.

Carbon Ratio

An article in The Oil and Gas Journal

(Continued on Page 195)

Deep Test in Terrell County, Texas

Expected to Add Much Information on the Pennsylvanian Possibilities of the West Texas Region

By George A. Kroenlein
Consulting Geologist, San Angelo, Tex.

One of the most important tests now drilling in West Texas is Transcontinental Oil Co.'s No. 1 Goode, located in Survey 26, G. C. & S. F. Railway Co. Block 161, Terrell County. This test will add much information to the meager fund on the Pennsylvanian possibilities of West Texas, a factor of economic importance because of the prolific production from the deep 8,500-foot pay of the Big Lake Field. The structure responsible for the drilling of this test is one of the major structural features of the Edwards plateau. Another feature of great interest to geologists is an exposure of Permo-Pennsylvanian formation in the Pecos River. A short outline and discussion of the features of this important wildcat follows:

Surface Structure

Figure 1 shows the surface geology of the Comanchean limestone with a contour interval of 10 feet. The Pandale-Stone Bend structure is 25 miles long and reaches a maximum breadth of 8 miles. It consists of three highs and is the largest surface fold on the south rim of the Permian Basin that has excellent prospect for production. The character of this fold indicates a reflection of structure in the underlying Carboniferous beds, a condition that does not hold for the

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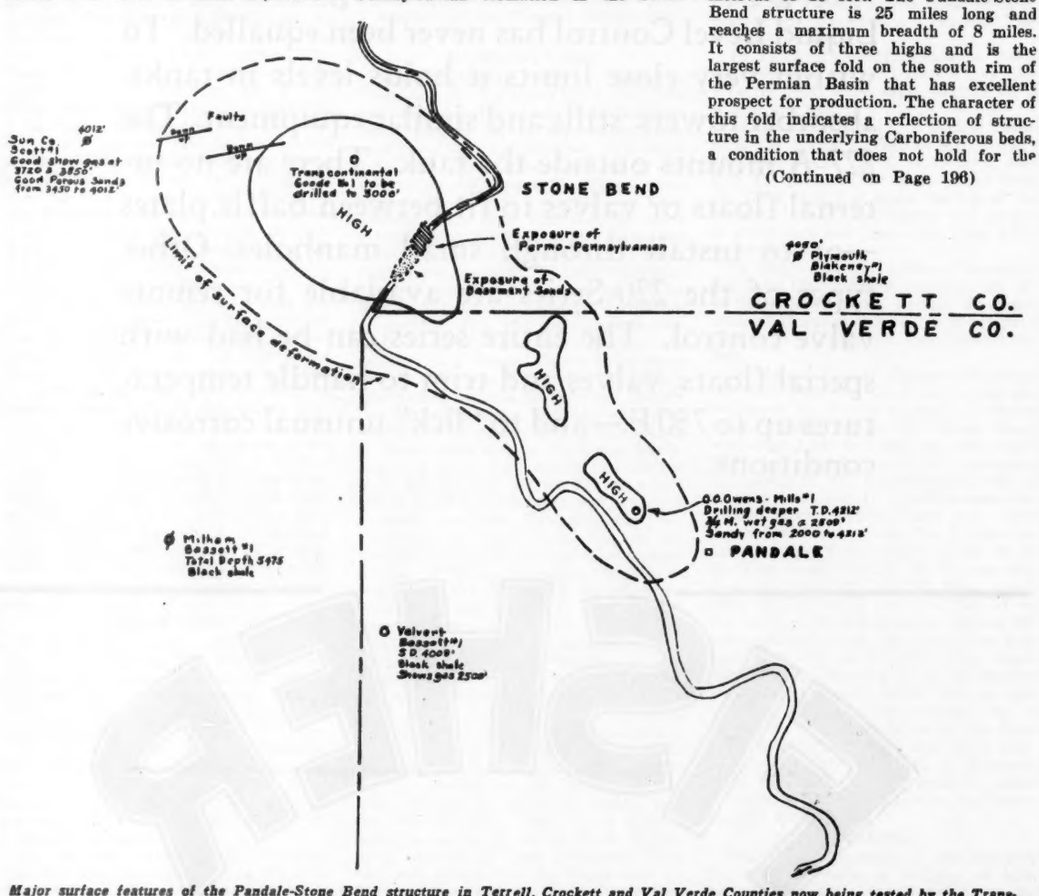

Major surface features of the Pandale-Stone Bend structure in Terrell, Crockett and Val Verde Counties now being tested by the Transcontinental Oil Co.'s No. 1 Goode, which will be drilled to 5,000 feet if necessary.

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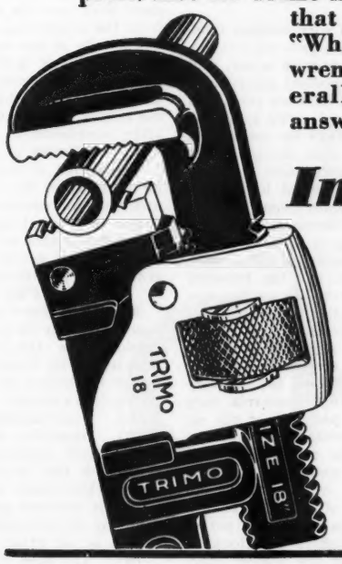

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Colombian Explains Proposed Oil Law

No Other Country Has Acted With Better Faith, Declares Official Representative. Advisory Committee Quoted

By Julio Corredor Latorre
Colombia's Official Representative at the 1929 International Petroleum Exposition

In The Oil and Gas Journal of October 10 there appeared an article signed by Charles E. Kern entitled, "New Colombia Oil Law Objectionable—Some Provisions Declared to Be Impracticable."

No other country in the world has acted in better faith than Colombia in formulating its oil laws. In its effort to protect the interest of foreign oil corporations without jeopardizing the interests of the Colombian people, the government called an advisory commission consisting of four foreigners who were considered petroleum experts in their respective countries. This commission consisted of H. Foster Bain from the United States, S. Gonzalez Cordero from Mexico, Thomas H. Holland from England, and O. Tancoulesco from Rumania. Each one of these gentlemen made a separate draft of what they considered the most important points in an equitable and comprehensive petroleum law. Each one presented to the government his individual and separate report. Following the study of these reports, conferences were held under the auspices of the minister of commerce to determine the basis for the new law. A unanimous agreement was reached in all points expect two: First, the provision regarding the option to collect the royalties either in the port of exportation or in the location of the property; and, second, the one regarding the amount of royalty to be paid as the distance of the producing property increases from the port of exportation. Therefore, the draft of the law presented to congress by the minister of commerce is strictly based on the principles outlined and presented by these foreign experts. With the purpose of proving my statements, I have the pleasure of presenting through the courtesy of The Oil and Gas Journal the aforesaid recommendations with the signatures of the gentlemen who acted as counselors. A mere comparison of these documents will reveal the faithfulness with which the Colombian government followed the recommendations of this commission in its efforts to promote unselfish co-operation for the best interests of all parties concerned.

Salient Points of Law

In brief, the salient points of the law are as follows:

1. The statement that the petroleum industry in all of its phases is to be considered a public utility, ceasing to be a private industry, even in the case of privately owned lands and regardless of the ownership of the subsoil.

2. That the government has a right to interfere in the solution of any problem concerning the oil industry.

3. That the government has the right to maintain an active vigilance on all phases of the oil industry, for the purpose of regulating the conservation and consumption of oil and to protect the health, life and interests of its citizens as affected by the industry.

4. That the government pursues as its main objective a policy of mutual benefit for the people of Colombia and foreign oil companies alike, without deviating from a policy of friendship and goodwill, and promulgating only laws and regulations whose principles have been generally accepted by the oil industry in other countries.

Report of Advisory Commission

The report of the advisory commission follows:

Basis for the project of petroleum law agreed upon by the undersigned foreign experts.

Superficial Exploration

It shall be free but it shall not give any right or expectation.

Concessions

Exploration and exploitation rights shall be included in a single contract.

Rights of Concessionnaires

A. The applicants, to be determined in accordance with this law, will have a right to an exploration and exploitation concession of a maximum of 50,000 hectares of public lands or lands in which the government owns the petroleum rights, and a minimum of 5,000 hectares; except where less than said minimum of such land is available for leasing; and the government shall have the power to select and reserve in each case an equal area, contiguous or not.

B. The government shall require, in any case where a structure or oil pool is not in single ownership, that a common or unit plan of exploitation be followed.

C. The period of exploration shall be five years subject to an extension to a minimum of five years more if the concessionnaire fulfills the exploration conditions. The concessionnaire may begin exploitation at any time, giving previous notice to the government for approval, accompanied by plans and a geological map of the particular area to be exploited; and the government will approve if the maps and data are completed.

Obligations of Concessionnaires

1. Each concessionnaire must demark the limits of his concession on the ground by suitable boundary pillars and on a map of the area on a scale of 1:100,000 drawn up by means of geographical coordinates.

2. The concessionnaire shall pay annually in advance a rental per hectare amounting for each of the first two years to 50 centavos; for the third year, $1; for the fourth and fifth years each, $1.50; for the sixth and each succeeding year, $2. At the end of any year after the first two, and on suitable notice, he may release in blocks of 5,000 hectares or multiple portions thereof any or all portions of his concession and thereafter his rentals and deposit of securities (hereinafter provided for) shall be reduced to correspond.

3. In the event of termination or abandonment of the entire lease the concessionnaire shall previously place in good condition all productive wells, buildings and other immovable property on the lease and the same shall pass to the government free. The government shall also have an option for 90 days to purchase all the movable property at a price to be fixed by appraisal by a board of experts. In determining whether or not property is movable the experts shall take into account its nature as shown by its use.

4. At the signing of the lease the concessionnaire shall deposit with the Banco de Republica securities of the Republic having a par value equal to $10 per hectare of the area leased, interest thereon to be paid to him as it shall accrue; but the principle shall be subject to forfeiture by due process of law for non-performance of the obligations of the contract.

5. Each year during the life of the contract the concessionnaire shall present to the Government a geological map of any area explored, on a scale of 1:50,000 accompanied by suitable explanatory text.

6. No person or company may drill or abandon any hole drilled for petroleum or gas, upon any land public or private, without submitting to the Government in advance a plan for such hole and receiving approval of such plan; and, except by agreement, no hole shall be drilled within 100 metres of an exterior boundary line.

Damages to Third Parties and Waste

The Government will not be responsible for any damage done to a third party by a lessee and any person or company exploring or exploiting petroleum lands, either public or private, shall conduct all operations in such manner as to prevent incursion of water into the oil or gas sands or other damage to them; and so as to prevent any avoidable waste of oil gas or gas pressure or leakage of gas or oil into any coal bed of present or prospective value penetrated by his drill holes.

Drilling Depths

The concessionnaire shall drill to the depth specified in his application and in accordance with his plans and geological map; provided that at any time he may submit a revised plan for the approval of the Government. The Government shall have the right, after two years from the completion of the work, to publish details of any drilling that may have been done, and with the consent of the concessionnaire, may so publish at any time. In case of dry or abandoned holes the results may be announced immediately after completion of the plugging.

Period of Concession

The period of the concession shall be 30 years from the date of its signature and the concessionnaire shall have an option to renewal for 10 additional years upon such terms as may at the time of such renewal govern leases then being granted by the Government.

Pipe Lines

The Government shall grant pipe line concessions for 30 yeadrs, giving the concessionnaires the advantages of public utilities. The Government shall have power to control the rates for transport taking into account:

(a). Amortization of capital.

(b). Operation, maintenance, and administration expenses.

(c). A fair profit to the concessionnaire which shall be not more than 8 per cent interest on the capital if the company is independent; or 6 per cent if owned by an exploitation concession.

(d). Any pipe line company which is not also an exploiting concessionnaire shall pay to the Government 5 per cent of its gross receipts. The pipe lines shall be public utilities and common carriers and the Government shall have a preferential right to the transport of its

(Continued on Page 133)

STUDY LIMESTONES AND DOLOMITES AS PETROLEUM RESERVOIR ROCKS

The American Petroleum Institute has issued a report on the progress of the petroleum research program during the year ended June 30, 1929. Speaking of Project No. 23, Limestones and Dolomites as Reservoir Rocks, it says:

During the past year, attempts have been made to study limestone reservoirs in the following producing areas: Kentucky, Wyoming (Embar), southern Oklahoma (Hunton formation), West Texas and the Texas Panhandle. Added evidence was obtained to the effect that the limestone reservoirs of Kentucky owe their porosity to erosion preceding the time of deposition of the overlying material. Production from the Hunton formation was found to come from below the erosion surfaces at the top of the Chimney hill and Bois d'Arc members. In the case of the Embar formation, a number of pay horizons were observed which had quite varying characteristics; and although the presence of an erosion interval between the Phosphoria limestone series and the Upper Embar or Dinwoody series has been clearly demonstrated, it is believed that some the pay horizons owe their porosity to some cause other than post-Phosphoria erosion.

Work on West Texas and the Texas Panhandle has not progressed sufficiently far to warrant the drawing of any definite conclusions, but enough has been accomplished to show the presence of several zones in certain of the fields in which porosity was developed as a result of sub-aerial erosion. In the case of the Panhandle, the pay horizon is usually characterized by a greater proportion of relatively insoluble constituents of the limestone than are found either above the pay or in the more impervious limestone below the pay. Work on these areas is being continued, and will constitute the main activity of the project during the coming year.

Experimental work on limestone has demonstrated the following facts:

Limestone absorbs the lighter fractions of oil passing through it, and at the same time there is a tendency for the heavier fractions to adhere to the rock. Thus oil migrating through any considerable thickness of limestone will become progressively heavier, and at the same time there will be a tendency for the openings through which it flows to become sealed with a tarry residue.

Oil in finely powdered limestone is displaced by water; and if coarsely powdered limestone saturated with water underlies finely powdered limestone saturated with oil, there will be an interchange of the two liquids until such time as the water entering the fine limestone has sealed off the fine material from the coarse. Provided the openings in the coarse material are not too great, the oil will continue to migrate downward against the water.

Flooding tubes filled with crushed limestone saturated with oil gave an average recovery of 76.7 per cent with water, 80.9 per cent with a deci-normal solution of sodium carbonate, and 83.8 per cent with a deci-normal solution of acetic acid. The average recovery obtained by continuous flooding was 70.3 per cent, as opposed to 81.0 per cent, for intermittent flooding. Continuous flooding followed by pauses, and later flooding yielded from 69 per cent to 87 per cent recovery. The recovery from tube lying at a low angle to the horizontal was much less than tubes lying at a high angle, and the recovery was found to vary inversely as the specific gravity of the oil and the rate of flow of water through the rock. It is concluded from these experiments that if the advance of water is retarded so that slippage does not take place, the recovery of oil from a limestone reservoir may total as much as 85 per cent of the oil content of that reservoir, and that the remainder will not be recoverable even by the use of mining methods.

Oil will migrate upwards through limestone by reason of capillarity. On such migration there is a selective action which permits the lighter fractions to move upwards, leaving the heavier fractions behind. In the experiments performed, approximately 70 per cent of the oil entering the limestone was absorbed by the rock and was not removable on washing. Blank tests showed that practically no evaporation took place in these experiments.

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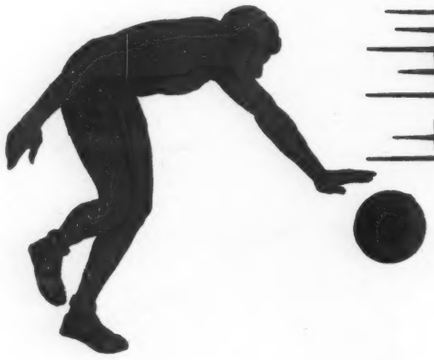

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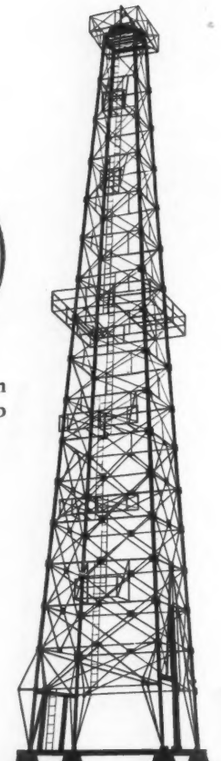

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Showings in Presidio and Reeves Tests

Renewed Interest in Crane and Upton Counties. Possible New Pool in Winkler County. Deep Test in Irion County

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 18.—Renewed interest in Crane and Upton Counties may be of minor importance to operators and companies operating in the Permian Basin, but to those holding acreage and having production in the various pools in these two counties it is bound to be rather interesting, especially when the new wells are of substantial caliber, showing up on flush production as well as many of the first producers of the pools.

Presidio and Reeves Counties drew considerable attention to themselves this week when showings of oil and gas were found in wildcat tests drilling in these two outlying areas. Fisher County rated another semiwildcat producer in an extension to the Willingham Pool, while Loving on the other side of the basin completed a good producer in the Hubbard Pool.

Shell Petroleum Corp.'s No. 1 Owen, in the NE cor., Section 16, Block 5, H.& T.C., Ward County, which a couple of weeks ago looked like a dry hole from the Shipley pay horizon, drilled below that pay formation and picked up a lime from 2,909-18 feet and filled up 1,300 feet with fluid, the most of it being oil. The well is now being straightreamed and casing will be set to shut off the water which is coming from 2,886-93 feet. As soon as this is completed the well will be tested.

May Be New Winkler Pool

The producing horizon of the discovery and other producers in the Hayzlett Pool is found around 2,440 feet, the formation being a sandy lime, and as this new well is 469 feet deeper, with practically the same surface elevation, and a west offset to the discovery, the pay found at this depth is bound to be an absolutely new one, classed as a lime pay, and opens up the speculation that this pool may now be opened as a new Winkler County pool from this greater depth. The Gulf-O'Brien wells, 12 miles north, help to bear out this presumption, for they are also producing from practically the same pay horizon as the Hendricks Pool on farther north.

As the Shipley or Hayzlett Pool was not looking so promising, due to the three south and west offsets being rather disappointing wells in the Shipley pay, this new discovery of deeper pay will no doubt bring greater confidence in the pool, and the present producers may be drilled to the deeper pay. Other tests will probably be sunk immediately on offset acreage, or within the pool to test the horizon found in the Shell well.

This new pay also goes to prove that practically every pool in West Texas has deeper pay horizons under the present ones, as other tests have proven in different pools of the Permian Basin, and when the potential of a pool subsides to marked degree deeper drilling will find new horizons of substantial character to help build the pool back to a great extent.

Good Deepening Marks

Winkler County has registered several good deepening marks when old producers, which have gone to water or have gone dead, have been revived by deepening, although on the other hand several have encountered more water on deepening and have been plugged. The Big Lake Pool, Reagan County, is the greatest example of what will do in the Permian Basin, but as the pay found in the three deep producers in that pool is below 8,200 feet, it is quite doubtful and hardly believable that all the pools of the basin will encounter such a deep pay formation, yielding such profits in oil and gas as those three producers.

The Yates Pool, Pecos County, with such a vast potential will probably not receive deeper tests below the present pay formations for a long time to come, but it, too, will probably eventually be tested as will the Howard-Glasscock and Crane and Winkler County Pools. At present market conditions do not merit such deep tests in other parts of the basin, but some day deeper exploration will no doubt be the general rule, and West Texas has a good chance of producing millions of barrels below the present pay strata.

Irion County Deep Test

Irion County is now getting a deep test in the Kingwood Oil Co.'s No. 1 Suggs, located in the SE NW SE, Section 19, Block 7, H.&T.C. Survey, and the well is drilling below 7,725 feet, having produced a little oil around 3,300 feet, and encountering good oil shows at various depths, and a good showing of gas at 7,656 feet. All of the gas and oil showings in this test have been encouraging, and practically the whole oil fraternity, especially that of West Texas is watching this test for future results, many believing it will eventually encounter a deep pay horizon and prove a commercial producer, opening up a new pool in a deep sand in this area. If this proves a well below its present depth, it will assure more deep drilling all over the basin, possibly bringing about an immediate deep test in Howard and Glasscock, where there is now a rumor of a deep test to be made in the near future.

Presidio County Test

One of the most interesting showings of the week, due to the fact that it is in extreme wildcat territory, was the gas showing in the Texas Pacific Coal & Oil Co.'s No. 1 Bogel, in the SW Section 83, Block 8, G.H.&S.A. Survey, Presidio County. This test went into a broken sandy formation at 2,820 feet, and the showing of gas came from this formation through 2,000 feet of water which was encountered from 2,640 feet, the last water found at 2,790 feet. A small showing of oil came up with the gas. Total depth of the hole is 2,903 feet, and at present the company is underreaming 8¼-inch casing through the water, with intention of shutting off the water and testing the showing.

This test is approximately 18 miles south of Marfa, and is on one of the largest surface structures in the county, and in that part of the basin. The Texas Pacific Coal & Oil Co. owns all offset acreage, a total of 11¼ sections in its block, and the Gulf Production Co. owns a large block east of the Texas Pacific test.

A Reeves County test of Lee O. White and others on the Hershenson farm in Section 5, Block 51, Township 10, T.&P. Survey, encountered an oil showing from 3,410-20 feet in sand, yielding a bailer of oil per hour every three hours, one of the best showings yet encountered in this county. The test is now drilling below 3,500 feet in salt.

Willingham Pool Extended

Cranfill & Reynolds extended the Willingham Pool approximately 1 mile east when their No. 1 Barrett in the SW Section 199, B.B.B.&C. Survey, topped a pay at 3,113-16 feet, filling the hole with 1,500 feet of oil in 30 minutes, then making two flows. Water began showing up in the second flow. This test now looks good for at least a small producer, and means the opening of more producing acreage in this area.

One of the last wells to be completed in the Church & Fields Pool, Crane County, is the Church & Field's No. 4 Duoll-University in the SW Section 39, Block 30. It started flowing steadily from 2,880-85 feet. Top of the pay was encountered at 2,843 feet, and the increase was hit at 2,880 feet, when it flowed at the rate of 85 bbls. per hour.

Cranfill & Reynolds' No. 1 Masterson, in Section 104, Block 10, H.&G.N. Survey, Pecos County, which had a good showing of oil last week from 1,249-50 feet, is shut down at 1,440 feet making a head of oil every 21 hours, the heads averaging around 10 bbls. each. This well is about 4 miles south of Buena Vista and is acting similar to the wells found in the Pecos Valley Pool to the west. The owners will no doubt deepen the test, but if sulphur water is encountered it will probably be plugged back to where the best showing was found, and shot at that depth in an effort to produce it.

This test is in wildcat territory in the county, and if a commercial producer is made out of it, more area will be opened to production, although the pool will be defined already to the south, southeast and northeast by dry holes.

Loving County Wells

Lockhart & Co. completed a good well in its No. 3 Hubbard in Section 83, Block 33, H.&T.C. Survey, Loving County. Top of the pay in this new producer of the Hubbard Pool was hit at 4,186 feet and the well shut down at 4,234 feet. It flowed 300 bbls. in 24 hours and was then shot with 150 quarts of nitro from 4,186-4,234 feet. After the shot it flowed 217 bbls. the first 12 hours, making one of the best wells yet completed in the pool. Oil from this pool is higher gravity than that found in the majority of the other basin pools, and is practically sweet. It is piped to a loading rack on the Santa Fe, thence by way of Pecos to the Rio Grande refinery at El Paso. Lockhart is now building a line to Pecos City where the oil will be loaded out on tank cars to El Paso, thereby saving considerable by eliminating switching fees from the Santa Fe to the Texas Pacific line at Pecos.

Ector County is now becoming an interesting sector, and several tests will probably be started in the Judkins area in a short time, one of the locations by Penn and the Atlantic Oil Producing Co. already being announced for the NW cor. N half, Section 18, Block 44, Township 3-S, T.&P. Survey. This acreage was purchased from the Llano Oil Co. for part cash and part oil, and the Llano company is to drill the well for the two mentioned companies. The Cosden Oil Co., Inc., is to drill a well in the SE N half, Section 2, University Lands.

The Landreth Production Co. has outlined a drilling and development plan for this area, submitting the plan to the various companies owning offset acreage. The plan takes in the possibility of vacancy strips existing and allows for these strips. This plan inculcates the idea of having the wells spaced 660 feet apart from north and south, and 880 feet from east and west, resulting in a systematic arrangement of six wells to each 80-acre tract, or 12 wells to each 160-acre tract. Should any excess exist it would be absorbed in the interval between inside locations.

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending November 18

ANDREWS COUNTY

Company, farm and location—	Remarks—
Deep Rock's No. 1 Ogden, 2,310 ft. E, 330 ft. S, Sec. 6, Blk. A-46, Public School Land	Gas show 2,895-2,900 ft.; show oil 2,900-10 ft.; 2,000,000 ft. gas 2,910-25 ft.; drlg. 3,325 ft.

BORDEN COUNTY

Louisiana Oil & Ref. Co.'s No. 1 Miller, 1,320 ft. from W and 150 ft. from S line, Sec. 355, Blk. 97, H.&T.C.	Top lime 2,300 ft.; shut down 3,315 ft.
Moncrief et al's No. 1 Munger, C of SW, Sec. 14, Blk. 31	Shut down 2,425 ft.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Top salt 1,030 ft.; drlg. 3,785 ft.

BREWSTER COUNTY

E. W. Bateman et al's No. 2 Nevill, 2,000 ft. S and W line of Sec. 62, Blk. 13, G.H.&S.A.R.R. Sur.	Shut down 2,274 ft.; fishing.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F.	Fishing 1,935 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,550 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 830 ft.
Grastorf et al's No. 1 Redfield, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.&S.F.R.R. Sur.	Machine.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor., Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 2,000 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.

COKE COUNTY

Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,892 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor., Sec. 272, Blk. 1-A, H.&T.C.	Pay 3,755-56 ft.; 6⅝-in. casing set 3,461 ft.; underreaming at 4,058 ft.; drlg. 4,180 ft.

CONCHO COUNTY

Duffy et al's No. 1 Callan, 1,520 ft. N and 1,120 ft. W of SE cor., Sec. 21, Blk. 10, H.&T.C.R.R.	Spudded and shut down.
Jones & Leiner's No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Top lime 1,770 ft.; top pay 1,775-80 ft.; 18 ft. oil in hole; to test; total depth 2,700 ft.
Lamb & Slick's No. 1 Mosely, 2,490 ft. from N and 150 ft. from W of Sec. 1,338, Bachinan Sur.	Moving in material.
Turner et al's No. 1 Borsig, 150 ft. from S of SE cor. G. Emig Sur. 136, 6 mi. W of Paint Rock	Shut down 735 ft.

(Continued on Page 120)

WEST TEXAS COMPLETIONS

Week Ending November 16

Crockett County

Moncrief and others' No. 3 Todd, located 330 feet from south and east lines of Section 29, Block WX, topped the lime at 1,225 feet and was dry and abandoned at 1,649 feet after having encountered sulphur water at 1,565-70 feet. California Co.'s No. 3 Powell, located 1,056 feet from south, 465 feet west of Section 62, Block BB, topped the salt at 1,080 feet, topped the lime at 2,495 feet, topped

(Continued on Page 125)

Decrease in Gray County Production

Tarver Pool, Foard County, Well Still Puzzling. Possibility of Town Lot Drilling Seen at Albany in Shackelford County

L. E. Bredburg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 18. — A 2,400-bbl. decrease in Gray County production will be of interest to those operating in this area of congested pipe lines and storage facilities, where the operators and companies have voluntarily curtailed developments, displacing the need for proration of all wells.

The Shell Petroleum Corp. and Fain & McGaha Oil Corp.'s No. 1 French, located in the Tarver Pool, Foard County, is still puzzling as to whether it will terminate into a commercial producer. It encountered hard lime with a showing of oil from 2,003-11 feet about two weeks ago, and had another showing of oil from 2,011-17 feet. The hole filled up 75 feet after swabbing it to the bottom, the rate of filling being about one hour, making it look better than it has heretofore, but not insuring a commercial producer as it stands. Another week will no doubt prove definitely the outcome of this test, possibly adding a small well to the two already producing in this pool.

The Humble Oil & Refining Co. extended the LeFors Pool a short distance to the west when its No. 1 J. H. Palmer, located in the W half, Section 31, Block B-2, H.&G.N. Survey, topped a granite wash pay at 3,110 feet and drilled to 3,120 feet. It was plugged back, however, to 3,110 feet and is to be put on the pump. No production has yet been reported, but it is sure of making a small producer and thereby making the extension.

Archer County Discovery

Archer County's new discovery of W. C. Young and The Texas Company, on the W. H. Taylor farm in the NE, Section 1, S.P. Survey, which was completed on November 7, for an initial production of 11 bbls. of oil and 26 bbls. of salt water, was deepened to 1,763 feet where it is now shut down while the owners are setting 6⅝-inch casing at 1,758 feet. It encountered another showing of oil from 1,760-63 feet and bailed and swabbed 40 bbls. of oil and 7 bbls. of salt water in 18 hours, thereby bettering its first initial production considerably. It is a semiwildcat, opening up a small extension.

Jack County Well

The Buttram Petroleum Co.'s No. 1 Lindsey, in the I. N. Wright Survey, Jack County, a west offset to the discovery well of this pool, owned by the same company, offers another well for this area. It topped the pay at 3,350 feet this week and the hole filled up in a short time, thereby assuring a commercial producer of high gravity sweet oil. The discovery well in this pool was the Buttram Oil Corp.'s No. 1 Boyd, in the southern part of the survey, 2 miles west of the town of Avis. It topped the pay at 2,423 feet, a much shallower pay than the one found in this second well, and was completed for an initial production of 128 bbls. of oil and 16 bbls. of salt water in 12 hours. This second test missed the pay found in the discovery, but found the deeper pay horizon. When No. 1 Boyd slumps off it will no doubt be deepened to the Lindsey's pay horizon in an effort to produce from that depth.

Shackelford County and the town of Albany have a new problem to face since Hart and Gist's No. 1 Clarke on the southern outskirts of the town, picked up the Tannehill sand at 680 feet, looking good for a commercial producer at 683 feet where it is shut down. A wire from the chamber of commerce of that town said the city council and state railroad commission were acting together in the matter of permitting town lot drilling, the council already having received several applications for permits to drill in the town.

This well is a wildcat, opening up a new area around and possibly in the town, and due to the fact that town lot drilling may be permitted, it has created much interest to operators in this county. It is located 870 feet from the north line and 570 feet from the west line of the NE, Section 2, B. A. Lands, and is estimated good for 50 bbls.

Callahan Interesting

The north central part of Callahan has become an interesting sector due to Campbell and others' No. 1 Jackson, located 2,060 feet from the west and 4,120 feet from the south line of Section 20, E.T. R.R. Survey, producing 18 bbls. an hour from the Hays-Howland sand. Top of this pay was found at 1,124 feet; the sand was said to be in the Canyon series. There is a dry hole 1 mile south, drilled to a total depth of 1,213 feet by Gibson and Johnson on the Jackson farm. A half mile west, Warren and others drilled No. 1 Jackson to 1,154 feet, encountering a good showing of oil in the well. It was due the showing found in the Warren test that prompted the drilling of the second test, this discovery, by Campbell and others. It is another discovery opening more territory to sweet, high gravity production in this area, adding another pool to the prolific Ranger district.

The George Pool in Brown County was defined this week by the two tests of G. A. Buders, Nos. 7 and 8 Kessler being dry and abandoned, the former at the total depth of 1,367 feet and the second at 1,381 feet. These two wells are defining markers of the pool on the north.

There are at present six wells drilling in Eastland-Keeney-Morris Pool, Coleman County, the pool producing an average of 4,009 bbls. of oil per day, the Gibson & Johnson-Crowder lease producing 1,032 bbls. of this amount, the White Eagle-Morris lease, 972 bbls., the Levi Smith-Morris lease producing 894 bbls., Tower & McKanna-Crowder lease, 227 bbls., Midwest Exploration Co.'s Keeney lease 154 bbls., Eastland Oil Co.'s Keeney lease 189 bbls., Eastland Oil Co.'s Morris lease 451 bbls., Eastland's Crowder lease 90 bbls. The most interesting of the present drilling wells is perhaps the Eastland Oil Co.'s No. 1 Griffin about a mile southwest of the present pool.

WICHITA DISTRICT COMPLETIONS

Week Ending November 16

Archer County

L. T. Burns' No. 2 Wilson was dry and abandoned at 1,465 feet. E. J. Stump's No. 1 Moss was dry and abandoned at 1,801 feet. R. I. Carter's No. 1 Scott was dry and abandoned at 1,257 feet. Jack Clark's No. 1 Cowan was dry and abandoned at 1,062 feet. F. P. Cullum's No. 1 Falls fee had an initial production of 38 bbls. at 1,117-33 feet. Key & Leath's No. 1 Logan was dry and abandoned at 1,253 feet. Madden & Stump's No. 1 Vernon was dry and abandoned at 1,205 feet. Petroleum Production Co.'s No. 13 Kunkel had an initial production of 20 bbls. at 1,141-44 feet. Young and The Texas Company's No. 1 Taylor topped the pay at 1,758 feet, was drilled to a total depth of 1,763 feet and had an initial production of 11 bbls. oil and 26 bbls. of salt water. W. D. Cline and others' No. 1 Hayter was dry and abandoned at 1,481 feet. Gordon and others' No. 1 Hamilton was dry and abandoned at 1,352 feet. Goldsmith and others' No. 3 Deitrich had an initial production of 160 bbls. at 1,154-61 feet. Moran Drilling Co. and Golding & Cochran's No. 1 Brown & Smith had an initial production of 40 bbls. at 1,425-28 feet.

NORTH TEXAS PRODUCTION
Week Ending November 16

Panhandle district—	Bbls.
Carson County	2,945
Hutchinson County	27,760
Gray County	60,910
Moore County	800
Potter County	0
Wheeler County	600
Total this week	100,015
Total last week	101,187
Decrease	1,172
Wichita district—	
Archer County	18,462
Baylor County	75
Clay County	575
Cooke County	8,610
Foard County	105
Jack County	3,725
Haskell County	105
Montague County	6,442
Throckmorton County	615
Wilbarger County	29,935
Young County	7,190
Wichita County	25,975
Total this week	102,224
Total last week	102,188
Increase	36
Ranger district—	
Brown County	10,621
Callahan County	3,370
Coleman County	7,010
Comanche County	1,245
Palo Pinto County	540
Eastland County	5,305
Shackelford County	9,430
Stephens County	6,300
Total this week	43,871
Total last week	47,471
Decrease	3,600
Grand total this week	246,110
Grand total last week	250,846
Decrease	4,736

Clay County

J. L. Art and others' No. 3 Byers & Co. was dry and abandoned at 1,020 feet. Lone Star Gas Co.'s No. 24 Stine and others was dry and abandoned at 1,846 feet. Mid-Continent Holding Co.'s No. 2 Stine was dry and abandoned at 1,840 feet.

Cooke County

W. F. Russell's No. 1 Marshall was dry and abandoned at 2,190 feet. Danciger Oil & Refining Co.'s No. 15 Huggins made 72 bbls. at 1,076-1,112 feet. Kewanee Oil Co.'s No. 1 Pembroke was dry and abandoned at 1,702 feet. Lloyd Oil Corp.'s No. 2-B Wheelock was dry and abandoned at 1,808 feet. Danciger Oil & Refining Co.'s No. 14 Huggins had an initial production of 96 bbls. of oil and 15 bbls. of water at 1,075-1,116 feet.

Jack County

Boller and others' No. 1 Raley had an initial production of 155 bbls. at 3,096-3,161 feet. F. H. E. Oil Co.'s No. 4 Daugherty made 30 bbls. at 315-67 feet. Hi-Land Oil Co.'s No. 1 Raley made 80 bbls. at 3,141-53 feet. Huffman-Lydecker's No. 1 Kuykendall was dry and abandoned at 3,219 feet. Osage Oil Corp.'s No. 1 Newman was dry and abandoned at 3,674 feet.

Montague County

Arco Oil Co.'s No. 2 Salmon made 60 bbls. oil at 996-1,016 feet. Arco Oil Co.'s No. 1 Salmon made 35 bbls. at 992-1,010 feet. Barnsdall Oil Co.'s No. 2 Cunningham made 27 bbls. at 921-27 feet. Bridwell's No. 10 Edmondson made 92 bbls. at 1,256-61 feet.

Young County

Goldsmith and King Royalty Co.'s No. 4 Kunkel was dry and abandoned at 1,-

(Continued on Page 125)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending November 18
CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Continental Oil Co.'s No. 2 Block, 990 ft. from N, 330 ft. from E, SE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Rig.
Danciger O. & R. Co.'s No. 1 Block, 330 ft. from N and E lines, Sec. 112, Blk. 4, I.&G.N. Sur.	S.D. 2,851 ft.
Delmar Oil Co.'s No. 5 Noel, 330 ft. S and W, NE cor. W½ SE, Sec. 198, Blk. 3, I.&G.N. Sur.	S.G. 3,000-10 ft; S.D. 3,131 ft.
Empire G. & F. Co.'s No. 1 Fields, 1,650 ft. from N and E, Sec. 13, Blk. 7, I.&G.N. Sur.	Shut down.
Empire G. & F. Co.'s No. 2 Deahl, 660 ft. N and E, SW, Sec. 3, Blk. 5, B.&B. Sur.	S.D. 1,414 ft.
Empire G. & F. Co.'s No. 1 Thorp, C NW, Sec. 26, Blk. T, A.B.&M. Sur.	Location.
Ham Oil Co.'s No. 1 Cooper, 330 ft. from S and W, E½ NE, Sec. 5, Blk. 9, H.&G.N.R.R. Sur.	Drlg. 420 ft.
Herragan Oil Co.'s No. 1-A McConnell, 320 ft. from N and W, W½ SW, Sec. 187, Blk. 3, I.&G.N.R.R. Sur.	Rigged up and S.D.
S. D. McElroy's No. 1 Block, 330 ft. from N and E, NE NW, Sec. 112, Blk. 4, I.&G.N.R.R. Sur.	Rigging up.
McMan O. & G. Co.'s No. 1 McConnell, 330 ft. from N and E, E½ SW, Sec. 187, Blk. 3, I.&G.N.R.R. Sur.	Rig.
Osborne et als' No. 3 Percival, 330 ft. N and W, SE cor. E½ NE, Sec. 199, Blk. 3, I.&G.N.R.R. Sur.	Location.
Pansota Oil Co.'s No. 1 Block, 330 ft. S and W, NE cor. SW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Cellar.
Phillips Pet. Co.'s No. 1 Garner, 330 ft. N and E, SW cor. SW, Sec. 114, Blk. 4, I.&G.N. Sur.	Fishing 2,940 ft.
Prairie O. & G. Co.'s No. 2 Nail, 330 ft. from N and W lines, N½ E½ SE, Sec. 198, Blk. 3, I.&G.N. Sur.	10,000,000 ft. gas 2,830-2,985 ft; S.D. 3,112 ft."
Red River Gas Co.'s No. 3 Lee Bivins-A, C SE SE, Sec. 43, Blk. M-20, G.&M.R.R. Sur.	S.D. 550 ft.
Reynolds et als' No. 2 Cooper, 330 ft. from S and W lines, E½ NW, Sec. 5, Blk. 9, I.&G.N. Sur.	S.D. 3,125 ft; T.P. 3,071 ft; 300 ft. oil in hole.
Ryan Cons. Oil Co.'s No. 6 Block, 330 ft. S, 990 ft. E, NW NE, Sec. 111, Blk. 4, I.&G.N. Sur.	S.D. 2,886 ft.
Shell Pet. Corp.'s No. 1 Percival, 330 ft. from N and E, SE, Sec. 199, Blk. 3, I.&G.N. Sur.	Rig.
Skelly Oil Co.'s No. 19 Schafer, 330 ft. N, 990 ft. E, SW cor. NE, Sec. 198, Blk. 3, I.&G.N. Sur.	6,000,000 ft. gas 2,895-2,970 ft; S. D. 3,100 ft.
Skelly Oil Co.'s No. 20 Schafer, 330 ft. N, 990 ft. W, SE cor. N½, Sec. 198, Blk. 3, I.&G.N. Sur.	S.D. 3,090 ft.
Skelly Oil Co.'s No. 21 Schafer, 340 ft. N, 1,540 ft. W, SE cor. SE, Sec. 68, Blk. 4, I.&G.N.R.R. Sur.	Location.
Stubblefield et als' No. 1 Garner, 330 ft. from S and E lines, SE, Sec. 104, Blk. 4	T.P. 2,990-3,024 ft; I.P. 25 bbls; T.D. 3,080 ft; shot 80 qts. from 3,000-70 ft; C.O.
The Texas Co.'s No. 3 Noel, 330 ft. N and W, SE cor. NW, Sec. 187, Blk. 3, I.&G.N.R.R. Sur.	Cellar.
The Texas Co.'s No. 3 Quinn, 330 ft. N, 990 ft. E, SW cor. E½, Sec. 7, Blk. 9, I.&G.N.R.R. Sur.	Rigging up.

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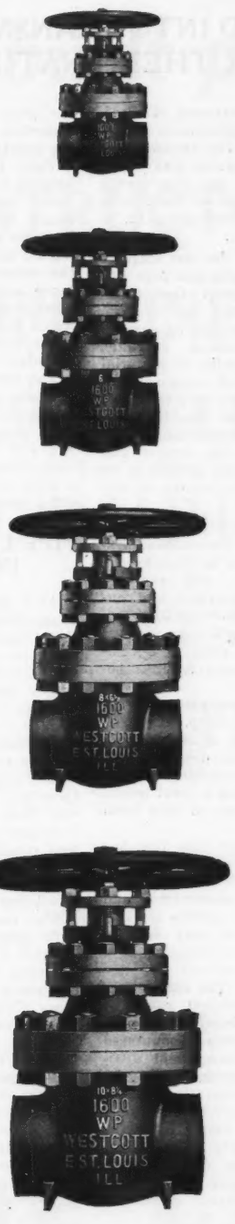
ALL STEEL
Flow Line *and* Drilling Gate Valves

WESTCOTT VALVES



EVERY Westcott Valve is tested to double working pressure. All sizes of these valves are made in the following test pressures:

500 pounds
1,000 pounds
1,600 pounds
2,500 pounds
3,200 pounds
6,000 pounds

For working pressures divide by two.

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Manufacturers of products for the Oil and Gas Industries exclusively. Full stocks carried in East St. Louis with additional stocks carried at over seventy points in the Oil Country.

Pipe Line Construction News

NEBRASKA PIPE LINE CO. TO DISTRIBUTE GAS

LINCOLN, Neb., Nov. 16.—The Nebraska Pipe Line Co., of which Clement L. Studebaker of Chicago is president, has incorporated for $1,500,000 and has started the construction of pipe lines to cities and towns in southern and central Nebraska, where an affiliated company, the Nebraska Natural Gas Co., has secured franchises. These are: Crete, Wilber, Ashland, Chester, Deshler, Fairfield, Clay Center, Harvard, Sutton, Blue Springs, Syracuse, Wahoo, Davenport, Edgar, Shelton, Wood River, Hebron and Gibbon.

In financial circles it is understood that this represents a combination of the Insull electric interests, which supply current to most of these towns, with Columbia Carbon, Skelly and The Texas Company, and that negotiations are now in progress to supply Lincoln and Omaha. At Omaha the Iowa & Nebraska Light Power Co. operates gas and electric plants, while at Omaha the city owns the gas plant. Extensions are planned to the smaller cities during next year.

The pipe line company will act as wholesale agency for supplying natural gas to the franchise holders at the towns, and the latter expect to make a rate that will bring natural gas into competition with coal and oil, both in heating homes and firing boilers in electric stations and other industrial plants.

CONSIDER PIPE LINE

Representatives of the Oklahoma Natural Gas Corp. of Tulsa and of the El Paso Pipe Line Co. appeared before the Municipal Utilities Board of Omaha, Neb., November 13, and stated they would present a proposition to the city regarding the construction of a pipe line from Oklahoma and Texas to Omaha to bring natural gas to Omaha. The attorney for the board is now drawing up specifications regarding the proposed pipe line and when these are presented to the Oklahoma Natural Gas Corp. and El Paso Pipe Line Co., these concerns will submit proposals to the city of Omaha regarding the proposed pipe line.

LINE TO VOSHEL POOL

WICHITA, Kans., Nov. 16.—The Prairie Pipe Line Co. is rounding out the completion of its 40-mile extension of 8-inch line from the Kansas pump station near Florence to southern McPherson County, by the construction of a pump station a mile south of the Voshel Pool to handle oil from that area. The plant is to be situated in the SW Section 15-21-3w. It is to be equipped with engines of a combined capacity of 200 horsepower, with a capacity of 25,000 bbls. of oil daily. Meanwhile, the Prairie Pipe Line Co. is taking the Voshel Pool oil, pumping it with tractor-type units. A telegraph line to the new McPherson station now is under construction.

Two pump stations are operated in Sedgwick County by the Prairie. One of these is north of Wichita about 5 miles and the other is near Greenwich.

PIPE LINE HALTED

CHATHAM, Ontario, Nov. 16.—Work which was started early this month on a natural gas pipe line from the Red Coulee Field to Coutts, Alberta, and Sweetgrass, Mont., is reported to have been halted owing to a difficulty in regard to the franchise. It was proposed to pipe the gas from Vanalta Oils' No. 1 well to the twin towns on the international boundary.

GAS TURNED INTO TRANSMISSION LINE OF SOUTHERN NATURAL GAS CORP.

The construction department of Ford, Bacon & Davis, Inc., engineers in charge of the construction of the transmission line of the Southern Natural Gas Corp., announces that natural gas was turned into the transmission line of the Southern Natural Gas Corp., November 12, at Monroe, La.

This operation marks the last stage of construction of the natural gas pipe line for the Southern Natural Gas Corp. which was begun the latter part of May, and which is being brought to completion on a record-breaking schedule. Viewed from the standpoint of material used as well as men and equipment, it is expected, the engineers say, that this project is the most rapid pipe line construction in the entire history of natural gas development. It is the largest and most extensive natural gas project to be constructed in the entire country at any one time.

There was no formality to the actual entrance of gas into the transmission system. The line was tested in 15-mile sections from day to day and whatever leaks are encountered repaired and another section given inspection. It is expected that natural gas will have reached the Birmingham district early in December and that it will reach Atlanta before January 1.

The main transmission system of the Southern Natural Gas Corp. is 496.1 miles in length, generally of 20-inch and 22-inch steel pipe. This does not include the latteral lines reaching various cities in the South, having a total length of 415 miles and varying in size from 3 inches to 12 inches.

The construction of the pipe line has been carried forward through every kind of soil from mud to rock. Considering the many kinds of soil encountered and the characteristics of the country through which the line passes, it may be said that this line has been constructed at a faster rate than any natural gas line yet built in this country. The contractors have removed over 2,000,000 yards of earth and rock and replaced it over the pipe line. There have been encountered and solved many interesting and difficult engineering problems including the crossing of the Mississippi River. More than 30 gangs of men have been engaged on the work, providing employment for over 7,000 workmen, while a large fleet of automobiles, tractors, ditching machines, back fillers, power shovels and other machinery have worked constantly on the construction.

This natural gas line, for the Southern Natural Gas Corp., is in effect an underground reservoir of natural gas containing over 150,000,000 feet of gas. A gas holder capable of holding such a large amount of gas would occupy four city blocks and would be twice as high as the tallest skyscraper in the South. This enormous storage of natural gas is only possible in a line of this magnitude.

The transmission line will have necessitated the expenditure of over $25,000,000 when completed, and its daily delivery capacity can readily be developed to 150,000,000 feet of gas per day. In every case, where practicable, materials used and men employed have been secured from the territory to be served by the line. The steel pipe and fittings have cost approximately $12,000,000. Over 600,000 gallons of paint coating have been used.

Construction has also gone forward on necessary pumping stations to provide the pressure necessary to deliver the gas to various points along the line. All of the work is modern in every detail and according to the best and latest engineering practices.

Ford, Bacon & Davis, Inc., have been identified as builders and engineers, with many important developments in the South. "This natural gas pipe line built into the growing Southeast, and providing an abundant supply of natural gas," the company adds, "will rival in importance and potential value, to this section of the country, any development with which we have been connected. It is to be expected that natural gas in such an abundant supply will lend new impetus to the industrial expansion of the Southeast and that manufacturers and domestic consumers will reap a real benefit from this modern and economical fuel. We feel it a privilege to be identified with this project, which will benefit such a large population in this rapidly developing territory."

PIPE LINE EXTENSIONS IN SOUTHWEST TEXAS

SAN ANTONIO, Tex., Nov. 18.—The Texas Pipe Line Co.'s new oil line from the Darst Creek Field in Guadalupe, north to a connection at Rosanky in southern Bastrop County with the company's main line from West Texas, is expected to be completed some time this week.

Southern Gas Co. is looping parts of its line from San Antonio to the Calliham Field, 68 miles south in McMullen County. Outside of the Texas Border Gas Co.'s lines at Laredo, this was the first gas line laid in Southwest Texas. Soil conditions have injured the line in places and the entire line is being tested and injured parts replaced. The line is also being looped to increase its capacity.

The company has taken up its line built from the Calliham Field to the Matthis Field in southern Live Oak and northern San Patricio Counties, and is extending its line in northwestern Jim Hogg County to a connection with the South Texas Gas Co.'s line to Monterey, Mexico, now under construction.

South Texas Production Co. is developing a supply of gas in Zapata County for the South Texas Gas Co. which is constructing the line to Monterey, Mexico. This line is now well advanced and practically completed on the American side of the river. The line into Monterey is expected to be completed by the first of January.

South Texas Production Co. has acquired a half interest in the F. P. Zoch acreage in Nueces County south of the Saxet Field on which he completed No. 1 Baldwin, a good big gas well some months ago. The South Texas Production Co., South Texas Gas Co. and Southern Gas Co. are all United Gas interests.

INTERNATIONAL GAS LINE

LAREDO, Tex., Nov. 16.—Within 60 days the first international gas pipe line across the United States-Mexico border will be completed, connecting Monterrey, Mexico, with gas fields in Webb County, east of Laredo. A gap of only 40 miles in the 141-mile line remains to be laid. The gas, which comes from the Jennings Field, will be handled by the United States Gas Co. on the Texas side as producers, while on the Mexican side it will be sold to consumers by Cia. Mexicana de Gas, S. A., which has headquarters in Monterrey. Smith Brothers Construction Co. has the contract for laying the line.

GAS MAY BE STORED IN UNDERGROUND TANKS

LOS ANGELES, Calif., Nov. 16.—It is probable that when the Southern California Gas Co.'s pipe line connecting Kettleman Hills and Midway is completed gas from the former field may be stored in the company's underground tanks at Midway. The new pipe line will connect Kettleman Hills with Los Angeles.

Definite announcement has not yet been made by the company, but it has been stated that unless there is an immediate market for the Kettleman gas, it is practically certain it will be thus stored.

For the past few years the gas company has sent surplus gas from Signal Hill, Santa Fe Springs, Ventura Avenue and other southern fields through its pipe line over the Ridge to Midway and pumped it into its old wells. This policy was in effect last summer when the southern demand for gas was low and the pipe line not needed to bring gas to Los Angeles.

Officials have stated that the Kettleman Hills-Midway line will always be available to bring gas to storage, as there is no operation in two directions as is the case with the Midway-Los Angeles line. The demand for Kettleman Hills natural gas is rapidly increasing; but, as other wells are brought in, it will be necessary to resort to underground storage.

BANNATYNE PIPE LINE

CASPER, Wyo., Nov. 16.—Consumers Pipe Line & Refining Co. has started work on the laying of its pipe line from the Bannatyne Field to the Great Northern Railroad at Collins. Pipe is being strung along the right of way and ditches are being dug. The line will be in service within a few weeks. There are many wells shut in in the Bannatyne Field solely for lack of an outlet. Such a line would provide an impetus toward further development. The Bannatyne wells average about 10 to 12 bbls. to the well on a pumping test, some of them making as high as 25 bbls.

The Drumheller interests have been awarded a gas franchise by the town council of Cut Bank, and will lay a short line to the location of the Younck well.

NEW KANSAS GAS LINES

JEFFERSON CITY, Mo., Nov. 16.—The State Public Service Commission has granted authority to the Pleasant Hill Gas Co., of which Charles I. Pruett of Kansas City is president, to continue with the construction of gas pipe lines in Cass, Jackson and Johnson Counties. The commission also approved the issuance of $100,000 capital stock.

KENTUCKY SURVEY

Allen M. Buckner has completed the survey of the new gas pipe line for the Missouri-Kansas Pipe Line Co. from Deanefield, Ohio County, to Hawesville, Hancock County, Kentucky, and is surveying the Ohio River crossing. The pipe line company, it is understood, will accept bids in the near future for construction of the new gas line.

MISSOURI-KANSAS EXTENSION

NEW YORK, Nov. 16.—The Missouri-Kansas Pipe Line Co. will open approximately 75 miles of additional pipe line shortly in Kentucky, Kansas and Missouri. This will give the company's system approximately 675 miles of main and gathering lines in that area.

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S H E E H A N

Pipe Line Construction Company

TULSA, OKLAHOMA

OKLAHOMA FIELDS

(Continued from Page 54)

production of 2,000 bbls. The daily average production for the pool for the week ending November 13 was 8,309 bbls. from 29 wells.

A new community test may be drilled by the Gypsy Oil Co. in Section 15-9-4, Pottawatomie County. It will also be a wildcat test for that area. The Gypsy Oil Co. owns the E half SW and W half SE of Section 15-9-4.

Several important wildcats in the St. Louis and Seminole areas are nearing the pay horizons. Magnolia Petroleum Co.'s No. 1 Jordon, SE cor. NW SE Section 12-7-4, Pottawatomie County, blew in last week while the cement plug was being drilled. It made 14 bbls. of oil before it could be shut in again. The total depth of the test was 3,800 feet in Hunton lime. It has been shut in and will not be completed for 10 days on account of proration. Lippa Drilling Co.'s No. 1 Pittman, SW cor. NW Section 3-8-4, Pottawatomie County, has cored a sand at 4,100-05 feet, which was dry. It was rigging up to drill to the deeper horizons. Gypsy Oil Co.'s No. 5 Green, NW cor. NE SE Section 17-7-4, Pottawatomie County, made 5,222 bbls. on November 14 and 4,605 bbls. on November 15. It is producing from the Viola lime at 3,977-4,000 feet.

Two new locations were staked last week offsetting the new producer in Section 8-6-6. The discovery well, E. L. Harris and others' No. 1 Harjoche, SE cor. NE SE Section 8-6-6, has been flowing between 35 and 45 bbls. every four hours from the Cromwell sand at 2,860-65 feet. Empire Oil & Refining Co. has made a new location in the SW cor. NW SW Section 8-6-6, and Shell Petroleum Corp. has also a location in the NW cor. SW SW same section.

Southern Oklahoma

In southern Oklahoma very little new work has been started. Operators are completing tests that have been drilling for some time. A new wildcat test may be drilled by the Carter Oil Co. on a large block it recently assembled in Townships 3s-4w, 4s-4w and 3s-5w, Stephens County. Arcola and others' No. 1 Cruce, NE cor. NW SE, Section 35-5s-2w, Carter County, was plugged back to the horizon at 3,400-3,600 feet. On testing this formation the crew found only a show of oil and considerable water.

The Palacine area in Stephens County has been extended to the west by the second gas well. Magnolia Petroleum Co.'s No. 1 Andrea, NE cor. SE NE, Section 8-2s-6w, made 40,000,000 feet of gas from sand at 2,983-3,007 feet. The discovery oil well in this area is Wirt Franklin Petroleum Co.'s No. 1 Spain, SW cor. SE NW, Section 9-2s-6w, Stephens County. It is making an average of 150 bbls. daily and was completed several months ago at 3,226-38 feet. Same company's No. 1 Bonner, NW cor. SE, Section 9-2s-6w, a quarter mile east of the above producing well, was found dry in that horizon and was drilling deeper at 3,774 feet in gray lime. On November 15, Carter Oil Co.'s No. 6 Carter-Kearns, SW cor. NE SE, Section 21-3-5w, Grady County, was drilling at 5,175 feet, in sand with nothing showing. Wirt Franklin Petroleum Corp.'s No. 1 Vann, SW cor. NW NW, Section 4-5-9w, Caddo County, has been plugged back to 3,502 feet, after reaching a total depth of 5,855 feet, where the hole was lost on account of a fishing job. It was being recemented at 3,502 feet. Water has broken in on the sand at this depth.

The southwestern part of the State is quiet. The majority of deep tests in that area have reached the granite wash and some found small oil showings while others were dry. A new wildcat test may be drilled in the SW cor., Section 23-12-24w, Roger Mills County. The area has been given a magetometer survey and this location selected. Indian Territory Illuminating Oil Co. and others' No. 1 fee, in Section 17-6-24w, was cleaning out at 1,880 feet. Helmerich & Payne's No. 1 Houck, in NW cor., Section 23-6-24w, Greer County, was drilling at 2,170 feet, in granite wash, after being shut down for a few weeks. The top of the granite wash was found at 1,445 feet. Kay & Martin's No. 1 Martin is shut down at 2,056 feet in lime. The top of the lime was found at 2,050 feet. The test had a showing of oil and water in sand at 1,981-90 feet. It is still making water from this formation and no oil. Owners expected to land 8-inch casing at 2,050 feet and dry up the hole and drill deeper into the granite wash.

New Wilcox Sand Pool

Independent Oil & Gas Co. has found a Wilcox sand well in a new area in Okfuskee County. The well is its No. 1 Wilson, SW cor. NW, Section 22-12-11. It made 225 bbls. the first 18 hours from Wilcox sand at 3,448-61 feet, after a 10-quart shot. The nearest producing wells in the Wilcox formation are in the Josey Pool, a mile south.

Shaffer Oil & Refining Co.'s No. 3 Little Chief, NE cor. NW NE, Section 4-18-5, Payne County, made 355 bbls. the first 24 hours from a break in the Mississippi lime encountered at 3,285-3,315 feet, where the well started flowing. It will be allowed to produce at this depth until production declines and then it may test the Wilcox sand horizon.

Oil production and drilling tests in Logan County that have been put under the proration plan are now being restricted. Tests now drilling in Township 19-4w, are being drilled to the Viola lime and then shut down until proration has been lifted. Proration of all oil production in this area has been effective for the last 30 days.

Deep Tests in Northwest

Very little leasing is under way in the northwestern counties of the State at this time. Some of the tests in that area have reached 6,000 feet or deeper, while others are nearing that level. The major oil companies are waiting for something to happen in the way of commercial oil and gas production in these wildcats before renewing leasing activity. The deepest test in that area encountered bad luck last week when part of the drill pipe was lost in the hole at a total depth of 6,161 feet. The test is the Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, Harper County, and is now fishing at that depth. Bu-Vi-Bar Petroleum Corp. and others' No. 1 fee, SE cor. SW, Section 10-25-15w, Woods County, was drilling at 5,995 feet, in lime carrying a hole full of water. Prairie Oil & Gas Co. and others' No. 1 Wilber, NE cor., Section 23-23-17w, Woodward County, was drilling at 5,810 feet, in shale and carrying a hole full of water. Harris & Haun's No. 1 Wyatt, C SE, Section 9-23-20w, Woodward County, was fishing for a bit at a total depth of 4,969 feet in shale. Sinclair Oil & Gas Co.'s No. 1 Stewart, C NE SW, Section 33-27-16w, Woods County, was drilling deeper at 5,600 feet, after finding a showing of oil at 5,405-15 feet. Peerless Oil & Gas Co.'s No. 1 Crowell, C NW NE, Section 33-28-16w, Woods County, has landed the 15½-inch casing at 1,093 feet and is shut down after cementing.

St. Louis Pipe Line Runs

The daily average pipe line runs from the St. Louis Pool for the week ending November 13, were as follows:

Company—	Bbls.
Consolidated	2,205
Cosden	471
Gulf	5,482
Magnolia	18,857
Oklahoma	1,027
Prairie	13,701
Sinclair	14,086
Shell	930
Texas	740
Tidal	5,001
Total	62,500

Seminole Runs

The daily average pipe line runs from the Seminole area this week were 242,269 bbls. The runs by companies for the week ending November 13, were as follows:

Company—	Bbls.
Barnsdall	3,021
Champlin	3,704
Continental	490
Consolidated	803
Cosden	9,202
Empire	4,763
Gulf	36,019
Magnolia	11,235
Oklahoma	45,605
Prairie	39,090
Producers & Refiners	1,076
Pure	3,789
Shaffer	3,072
Shell	6,645
Sinclair	24,433
Texas	17,690
Tidal	19,200
White Oak	2,370
Total	232,799
Tank cars	9,470
Grand total	242,269

Gypsy Oil Co.'s No. 9 Barkus, NW cor. SW SW, Section 6-8-6, Mission Pool, has reached a total depth of 5,604 feet. It is expected to be drilled deeper as some are of the opinion that it has not as yet drilled into the Arbuckle lime. The 6-inch casing may be landed at this depth before deeper drilling is commenced.

Caddo County

Louisiana Oil Refining Co. has the rig up to deepen No. 1 Rowe, SW cor. NW NE Section 36-6-10w. Magnolia Petroleum Co.'s No. 6 Caddo-Rowe, SE cor. NE SW NE Section 36-6-10w, is rigging up. No. 7 Caddo-Rowe, NW cor. SW NE Section 36-6-10w, is a location. No. 3 Niles, SE cor. NE NW Section 36-6-10w, is preparing to deepen from 2,345 feet. Noble & Olson's No. 3 Ed Rowe, SW cor. NW SE NE Section 36-6-10w, has cemented surface pipe. English Drilling Co. is moving the tools in to deepen No. 3 Abernathy, NW cor. SE SE Section 31-6-9w. Caddo Petroleum Co.'s No. 1 Estes, C SW SW Section 33-6-9w, an old well being deepened, is fishing a liner, total depth 2,443 feet.

Carter County

Magnolia Petroleum Co. is erecting the rig for No. 5 E. Gill, NE cor. SE NE Section 23-1s-3w. F. W. Merrick and others' No. 3 Denny, NW cor. SW Section 20-1s-3w, has been abandoned at 3,850 feet. The Prairie Oil & Gas Co.'s No. 1 McCartney, NW cor. SE Section 30-1s-3w, is preparing to deepen from 2,858 feet.

Cotton County

Barnsdall Oil Corp.'s No. 16 Keys, NE cor. SE NE SW Section 33-1s-10w, is drilling at 1,535 feet. Razor & Aikens made location for No. 3 Chambers, SE cor. SW Section 35-1s-10w. Shasta Oil Co.'s No. 3 Cobb, CNL S half NE Section 2-2s-10w, is cementing 6-inch pipe at 2,130 feet, total depth 2,134 feet. Wirt Franklin Petroleum Corp.'s No. 5 Chambers, C SW SE Section 35-1s-10w, is drilling at 2,100 feet. Baldwin & Sultan's No. 5 Rhone, NE cor. SW SE SE Section 35-1s-10w, is pumping 60 bbls. from sand 2,160-90 feet. Wirt Franklin Petroleum Corp.'s No. 4 Chambers, CSL SE Section 35-1s-10w, made 125 bbls. in sand 2,145-92 feet. Shasta Oil Co.'s No. 7 Slogan, SE cor. NW NE NE Section 2-2s-10w, has been completed for 75 bbls. in sand 2,178-98 feet.

Creek County

Foster Petroleum Co. and others made location for No. 1 Hinton, NE cor. SE SE Section 26-19-8. Holmes & Burton's No. 1 Cook, NW cor. NE Section 14-18-9, is a rig. O. M. Irelan and others' No. 2 Hay, NW cor. NE NE SW Section 3-17-10, is spudding. Reiter-Foster Oil Corp.'s No. 2 Littlehead, CSL SW SE Section 17-17-10, is rigging up. Skelly Oil Co.'s No. 1 Foster, NE cor. SE SW Section 30-15-9, is an old well rigging up to deepen from 3,044 feet. Wilcox Oil & Gas Co. and others' No. 1 Johnson, SW cor. NW SE Section 6-14-10, is spudding. Atlantic Oil Producing Co.'s No. 1 Reynolds, SW cor. NW NE Section 16-14-10, is drilling deeper at 3,293 feet. Sheridan Oil Co.'s No. 2 Peters, C SE SE Section 33-16-11, has been completed for 60 bbls. in sand 2,009-49 feet. Pioneer Petroleum Co.'s No. 5 Morgan, NW cor. SW NE Section 15-19-9, has been completed for 2,500,000 feet of gas in sand 2,224-38 feet. McCulloch Oil Co.'s No. 1 Davis, NW cor. Section 21-19-9, is dry and abandoned at 2,848 feet. Magnolia Petroleum Co.'s No. 1 Vance, NE cor. NW NE Section 7-18-7, made 30 bbls. in Bartlesville sand 2 522-80 feet. Link Oil Co.'s No. 4 Freeman, NE cor. SW NE Section 33-18-7, has been completed for 10 bbls. in Layton sand 1,383-1,464 feet after plugging back from 2,700 feet. Gem Oil Co.'s No. 1 Allen, SE cor. NE SE Section 7-17-8, has been abandoned at 3,365 feet. Sooner Oil & Gas Co.'s No. 5 Bruner, CWL SE SW Section 12-17-11, has been completed for 500,000 feet of gas in sand 1,171-1,205 feet. Magnolia Petroleum Co.'s No. 2 Talmase, CWL NE NW Section 3-16-7, has been abandoned at 2,953 feet.

Grady County

Public Service Co. of Oklahoma's No. 3 Dryden, NE cor. SE NW Section 2-4-8w, made 10,000,000 feet of gas in broken sand 2,135-2,400 feet.

Jefferson County

Bridwell Oil Co.'s No. 1 Seay, NW cor. SW NW Section 29-6s-5w, has been abandoned at 2,209 feet. Superior Oil Corp.'s No. 1 Nesmith, SW cor. SE SE Section 2-7s-7w, is dry and abandoned at 3,914 feet.

Kay County

De Camp and others' No. 1 Warren, C SW NW Section 30-28-1, is spudding.

Latimer County

Le Flore County Gas & Electric Co.'s No. 5 R. O. Hardaway, SE cor. NE NE Section 10-6-22, has been completed for 10,000,000 feet of gas in sand 1,461-1,719 feet. No. 6 R. O. Hardaway, SW cor. NW SW Section 11-6-2, made 4,000,000 feet of gas in sand 1,776-1,903 feet. No. 4 R. O. Cole, SW cor. NE NW Section 11-6-22, has been completed for 9,880,000 feet of gas in sand 1,578-1,840 feet. Limestone Oil & Gas Co.'s No. 1 Murray, SW cor. Section 15-5-18, made 5,000,000 feet of gas in sand 2,518-50 feet after plugging back from 4,050 feet.

Lincoln County

Magnolia Petroleum Co. made location for No. 1 Myers, NW cor. NE NE Section 17-14-4.

Logan County

Shell Petroleum Corp.'s No. 11 McCully, NW cor. SW SE Section 30-19-4w Roxana Pool, has been completed for 1,770 bbls. in Wilcox sand 5,938-75 feet. No. 12 McCully, SW cor. NW SE Section 30-19-4w, made 1,642 bbls. in Wilcox sand 5,945-65 feet.

Marshall County

Cox & Hammon moved a machine in for No. 1 McComas, NW cor. SW SW Section 13-5s-5.

McIntosh County

Spring Valley Oil Co.'s No. 1 A. Carr, SE cor. NE NW Section 16-10-13, is dry and abandoned at 3,251 feet.

Muskogee County

W. J. Metzger and others' No. 11 L. Francis, SE cor. SW NW SW Section 1-14-18, is drilling at 550 feet. H. L. Jolly's No. 4 R. Cherry, NE cor. NW Section 2-14-18, is rigging up. W. J. Metzger and others moved a machine in for No. 2 S. Taylor, NW cor. SE Section 14-14-18. C. F. Ray and others' No. 1 Foreman, NE cor. SW SE Section 15-13-18, is spudding. John Aggas' No. 3 M Hawkins, SE cor. NW SE Section 28-16-15, has been completed for 2,193,000 feet of gas in sand 1,505-08 feet. Bryan Petroleum Co.'s No. 9 N. Barnett, SW cor. NE NE Section 8-15-15, has been deepened to sand 1,847-59 feet and completed for 3,500,000 feet of gas. W. S. Mussellem's No. 2 W. Carver, CSL NE NE Section 4-13-19, is dry and abandoned at 1,515 feet.

Okfuskee County

Twin State Oil Co.'s No. 1 Crumme, SW cor. NE Section 32-12-10, is a rig on the ground. Sunray Oil Co.'s No. 1 Johnson, NW cor. NE Section 30-12-9, is dry and abandoned at 4,193 feet. Independent Oil & Gas Co.'s No. 1 Wilson, SW cor. NW Section 22-12-11, made 221 bbls. in Wilcox sand 3,443-61 feet. B. Foster and others' No. 1 Jackson, CNL NW SW Section 30-11-11, has been abandoned at 3,855 feet. Mid-Continent Petroleum Corp.'s No. 1 Grayson, NE cor. SW Section 31-11-11, has been completed for 17,000,000 feet of gas in sand 3,088-93 feet.

Okmulgee County

Kirkland & Son's No. 2 Carr, SW cor. NW SW Section 17-15-13, is a rig. No. 2-A Gibson, NE cor. SW NE Section 17-15-13, is spudding. Campbell & Cochran's rig is up for No. 1 Depriest, NE cor. Section 19-15-13. C. D. Burns' No. 4 Stevens, C SE SE Section 1-14-12. is drilling at 2,230 feet. J. E. Hennesey's

Independent Oil Well Cementinq Co. finds Gardner-Denver Pumps both durable and accessible

Pumps for cementing service should be designed for extreme durability notwithstanding severe shocks and heavy pressures. Parts should be easily accessible for inspection or renewals. Gardner-Denver Booster Pumps fulfill these requirements. ¶ The Independent Oil Well Cementing Company outfit shown above is equipped with two Gardner-Denver Steam Booster Pumps.

Ask for Bulletins P-31 & 32

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GARDNER-DENVER

No. 1-A Fee, NE cor. SE SW Section 9-13-14, is spudding. J. A. Swindler's No. 1 Bell, C NW SE Section 20-15-13, has been completed for 20 bbls. in sand 1,987-97 feet.

Osage County

Peters Petroleum Corp.'s No. 3 NW cor. NE NW Section 27-27-11, is rigging up. Indian Territory Illuminating Oil Co. has the cellar dug for No. 424, SE cor. SW SE NW, Section 8-24-9. No. 4, NE cor. SW SW Section 28-23-9, is spudding. Barnsdall Oil Co.'s No. 6, NE cor. SE NE Section 27-22-10, is an old well drilling deeper at 2,108 feet. Peters Petroleum Corp. and Producers & Refiners Corp.'s No. 4-A, SE cor. SW SW Section 22-27-11, has been completed for 11 bbls. in sand 752-76 feet. No. 5, SE cor. SW SW Section 22-27-11, made 85 bbls. in Bartlesville sand 1,686-1,706 feet. Peters Petroleum Corp.'s No. 8, NE cor. SW SE Section 22-27-11, made 70 bbls. in Bartlesville sand 1,693-1,712 feet. Peters Petroleum Corp. and Producers & Refiners Corp.'s No. 4, SW cor. NW NE Section 27-27-11, has been completed for 40 bbls. in Bartlesville sand 1,641-54 feet. No. 1, SE cor. NE Section 10-26-8, made 120 bbls. in Burgess sand 2,231-32 feet. The Texas Company's No. 2, SW cor. NW SE Section 22-24-7, made 200 bbls. in siliceous lime 2,943-87 feet. Oklahoma Natural Gas Corp.'s No. 1,741 CNL SW SW Section 5-21-12, has been completed for 250,000 feet of gas in Bartlesville sand 1,345-70 feet. Oklahoma Power & Water Co.'s No. 126, NW cor. NE NW Section 9-20-10, has been completed for 190,000 feet of gas in sand 439-45 feet. Peters Petroleum Corp.'s No. 1, NW cor. NE Section 9-20-10, is dry and abandoned at 2,223 feet.

Pawnee County

Capitol Hill Oil Co.'s No. 2 Green, SE cor. NE SE Section 25-21-8, is drilling at 200 feet. H. U. Bartlett made location for No. 2 Fleming, SE cor. Section 15-20-9.

Payne County

Reiter-Foster Oil Corp. made location for No. 1 Finnell, C NE NW Section 8-19-1w. Consolidated Drilling Co.'s No. 1 Freeman, SW cor. Section 4-18-6, has been abandoned at 3,698 feet.

Pittsburg County

Midwestern Oil & Gas Co.'s No. 1 Colton, SE cor. SW SE Section 9-7-18, is rigging up. R. P. Lester's No. 1 Carney, NE cor. NW Section 15-7-18, has been completed for 15,500,000 feet of gas in sand 1,843-1,969 feet.

Pottawatomie County

Brown Drilling Co. has the rig up for No. 1 Earlsboro Townsite, Block 2, Lot 1, Section 8-9-5. Standard Drilling Co.'s rig is up for No. 1 Earlsboro Townsite, Lot 1, Block 19, Section 8-9-5. Superior Oil Corp. and others' No. 3 Songster, SW cor. NW NW Section 8-9-5, is a cellar. Magnolia Petroleum Co. moved the rig in for No. 4 Banta, SE cor. NE SE Section 14-7-4, St. Louis Field. Gypsy Oil Co.'s No. 3 Green, NE cor. SE Section 17-7-4 Pearson Field, is cleaning out to deepen from 3,980 feet. Empire Oil & Refining Co.'s No. 1 McCouven, SW cor. NW Section 25-8-4, is dry and abandoned at 4,511 feet. Amerada Petroleum Corp.'s No. 1 Smith, SE cor. NE NE Section 8-8-5, Maud Pool, has been completed for 455 bbls. in Hunton lime 4,023-50 feet. Twin State Oil Co.'s No. 1 Rhodd, SW cor. SE NE Section 8-7-4, is dry and abandoned at 4,300 feet. Mid-Continent Petroleum Corp.'s No. 2 Robbins, SE cor. SW Section 9-7-4, made 105 bbls. from Hunton lime 3,640-3,860 feet, after plugging back from 4,775 feet. T. B. Slick and White Eagle Oil & Refining Co.'s No. 3 Latimer, SW cor. NW Section 16-7-4, swabbed 600 bbls. from Simpson sand 4,092-4,128 feet. Darby Petroleum Corp.'s No. 1 Bettis, SW cor. Section 21-7-4, made 945 bbls. in Simpson sand 4,175-95 feet. T. B. Slick's No. 2 Alexander, SE cor. NW SE Section 19-6-4 Asher Pool, has been completed for 50 bbls. in Viola lime 3,655-3,713 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Burrows, CWL E half NW Section 19-6-4 Asher Pool, has been abandoned at 3,646 feet.

Hughes County

The Prairie Oil & Gas Co.'s No. 4 Hampton, NE cor. NW NW Section 20-8-10, has been deepened to 3,797 feet and completed for 40 bbls.

Pontotoc County

Benedum Trees Oil Co. made location for No. 2 Coker, NW cor. Section 31-5-5 Bebee Pool.

Oklahoma County

The Prairie Oil & Gas Co. and T. B. Slick's No. 3 Hiddleston, SW cor. NW SE Section 19-11-2w Oklahoma City Pool, made 6,695 bbls. in lime at 6,503 feet.

Seminole County

Gypsy Oil Co. is erecting the rig for No. 1 Taylor, SE cor. NE SW Section 19-9-6 East Earlsboro Pool. Continental Oil Co. and others' No. 1 J. Harjo, NW cor. SE Section 26-8-5, is rigging up. Producers & Refiners Corp.'s No. 3 Jefferson, SW cor. NE SE Section 19-9-6, is drilling at 400 feet. Magnolia Petroleum Co.'s No. 1 Kiker, SW cor. SE Section 20-8-7, is a location. Carter Oil Co. made location for No. 6 Jackson, NW cor. NE Section 11-7-6 Little River Pool. Location was also made for No. 4 Walker, NE cor. NW Section 24-7-6. Barnsdall Oil Co.'s No. 4 Noble, NW cor. SE SW Section 18-9-6 East Earlsboro Pool, has been completed for 210 bbls. in sand 4,265-77 feet. Carter Oil Co.'s No. 5 Jackson, NE cor. NW NE Section 11-7-6, has been completed for 1,325 bbls. in Cromwel l sand 3,070-84 feet. The Texas Company's No. 8 D. Hotulke, NW cor. SW NW Section 23-7-6, is dry and abandoned at 3,148 feet. Carter Oil Co.'s No. 3 Walker, SE cor. NE NW Section 24-7-6 Little River Pool, has been completed for 1,835 bbls. in sand 4,140-71 feet. Gypsy Oil Co.'s No. 1 Willie, SW cor. NW NE Section 24-7-6, made 772 bbls. in sand 4,126-36 feet. Mid-Continent Petroleum Corp.'s No. 11 Smith, SW cor. NW SE Section 5-7-7, East Little River Pool, made 1,325 bbls. from sand 4,195-4,223 feet. Sinclair Oil & Gas Co.'s No. 3 Joanna, NW cor. SW NW Section 24-5-7, has been completed for 317 bbls. in sand 4,218-29 feet.

Stephens County

T. B. Slick's No. 1 Blake, NE cor. SW SW Section 16-1s-8w, is rigging up. Magnolia Petroleum Co. made location for No. 1 McClure, NE cor. Section 19-1s-8w. Atlantic Oil Producing Co. moved rig material in for No. 4 Taylor, SE cor. SW NW Section 12-1s-4w. Amerada Petroleum Corp. has the rig up for No. 6 Hanson, NE cor. NW SW Section 12-1s-4w. No. 7 Hanson, NW cor. NE SW Section 12-1s-4w, is also a rig. Magnolia Petroleum Co. has built the rig for No. 4 Hanson, SW cor. SE NW Section 12-1s-4w. Meridian Gas Co.'s No. 1 Collins, C NE NE Section 12-1-9w, has been abandoned at 3,000 feet. Magnolia Petroleum Co.'s No. 1 Andrea, NE cor. SE NE Section 8-2s-6w, made 39,000,000 feet of gas in sand 2,983-3,008 feet.

Tulsa County

L. E. Lockhart and others' No. 1 Childers, CSL SE SW Section 28-17-14, is rigging up. Bingham & Fleetwood's No. 1 Davis, NW cor. SW SE NE Section 24-17-14, made 60 bbls. from Wilcox sand 1,802-04 feet.

Wagoner County

H. W. Bauder's No. 1-A Scherley, SE cor. NE Section 7-18-15, has drilled to 700 feet and shut down. Union Oil Co.'s No. 1-A McKellop, NW cor. NE NW Section 25-18-15, is spudding. J. H. Striker's No. 3 Prince, NE cor. SW Section 29-18-16, has been abandoned at 804 feet. Knox & Shouse's No. 1 Murphy, SE cor. SW NE Section 18-17-16, has been completed for 1,000,000 feet of gas in sand 977-92 feet. H. H. Orr's No. 1 Grayson, NW cor. SE Section 34-17-18, made 1,000,000 feet of gas in sand 409-20 feet. Keener Oil & Gas Co.'s No. 1 S. Rogers, SE cor. SW SE Section 33-17-19, is dry and abandoned at 786 feet. Western Gas & Electric Co.'s No. 1 Ross, SW cor. SE Section 15-16-19, has been abandoned at 850 feet.

PRODUCTION OF ST. LOUIS POOL

Average daily production for the St. Louis Pool for the week ending November 13:

Company, farm—	Location	Wells	Prod.
Amerada:			
Richardson	16-7-4	1	19
Atlantic et al:			
Bass	9-7-4	1	118
Bewley	9-7-4	1	40
Burke	16-7-4	3	555
Milburn	15-7-4	1	95
Standridge	10-7-4	1	83
Barnsdall:			
Stahl	30-7-5	3	338
Blackwell:			
Cherry	25-7-4	3	481
Lewis	24-7-4	2	83
Carter:			
McGee	26-7-4	1	17
Darby:			
Floyd	22-7-4	1	12
Bettis	21-7-4	1	255
Harber	23-7-4	1	65
Nixon	9-7-4	2	127
Youngblood	16-7-4	4	388
Darby-Atlantic:			
Cardwell	15-7-4	1	231
Empire:			
Bettis	17-7-4	2	90
Jackson	36-8-4	1	255
State	36-7-4	1	120
Gypsy:			
Bruno	25-7-4	3	47
Collins	25-7-4	4	453
Dodson	26-7-4	4	123
Green	17-7-4	5	2,722
Johnson	29-7-5	1	28
LeClair	23-7-4	4	1,443
Rosemond	26-7-4	4	345
Stahl	30-7-5	5	114
Gypsy et al:			
Johnson, W.	7-7-4	1	2
Healdton:			
Hines	17-7-4	1	60
Home Gas Co.:			
St. Louis	14-7-4	1	225
Houston Oil:			
Wyatt	17-7-4	3	636
Independent:			
Barrow	1-7-4	3	441
Blandin	30 7-5	5	940
Yous	19-7-5	8	2,407
Independent-Darby:			
Brown	14-7-4	2	11
Carson	23-7-4	1	Off
Curley	22-7-4	1	Off
Davis	15-7-4	1	116
Freid	23-7-4	2	49
Jordon	10-7-4	1	22
LeClair	23-7-4	1	56
Pappan	16-7-4	2	488
Pillar	15-7-4	1	8
Standridge	14-7-4	3	31
Wallace	14-7-4	4	73
Independent et al:			
Hambry	14-7-4	2	17
Was	30-7-5	1	25
Independent-Mid-Kansas:			
Weldfelt	2-7-4	1	899
Independent-Range:			
Null	35-8-4	1	160
Independent-Skelly:			
James	16-7-4	2	141
Independent-Westland:			
Booze	9-7-4	1	35
Rhodd	16-7-4	3	503
I.T.I.O.:			
McGee	26-7-4	1	92
Shobe	35-8-4	3	148
Weams	21-7-5	1	71
Weldfelt	2-7-4	2	343
I.T.I.O.-Sinclair:			
Woodard	18-7-5	1	38
Inter-Ocean:			
Coley	24-7-4	1	15
McGee	23-7-4	5	203
Irvin Marten:			
Kelly	2-7-4	3	562
Magnolia:			
Banta	14-7-4	3	269
Billington, C.	11-7-4	1	7
Billington, E.	22-7-4	1	110
Brandenburg	18-7-5	5	1,313
Bullock	18-7-5	1	1
Caudle	13-7-4	2	77
Cherry "A"	25-7-4	5	336
Cherry "B"	26-7-4	3	111
Clour	11-7-4	2	15
Davis, C. E.	24-7-4	1	10
Davis, Frank	15-7-4	2	13
Engle	34-7-4	1	52
Fyke, George "A"	20-7-5	1	144
Fyke, George "B"	20-7-5	2	306
Fyke, L. L.	20-7-5	1	7
Fyke, Tulle "A"	20-7-5	1	72
Fyke, Tulle "B"	20-7-5	2	266
Fyke, Tulle "C"	20-7-5	1	41
Fyke, Tulle "D"	20-7-5	2	309
Fyke, Tulle "E"	28-7-5	1	10
Green, B. L.	13-7-4	1	7
Green, Lulla	13-7-4	1	58
Guinn	20-7-5	1	22
Harden	12-7-4	2	186
Hatcock, C. D.	11-7-4	1	13
Hatcock, Lee	11-7-4	1	65
Harper, J. J.	19-7-5	1	12
Harper, James	19-7-5	2	5
Hembree	19-7-5	4	95
Hilton, J.	22-7-4	1	23
Jones, "A"	18-7-4	1	78
Jones, M. A.	8-7-4	1	15
Kiner	17-7-5	1	3
Latimer	17-7-4	2	150
Louis, J. L.	15-7-4	1	8
Lynn, D.	21-7-4	1	185
Lynn, F.	21-7-4	1	286
Mull	15-7-4	1	3
Nicklass	31-7-5	2	56
Nona	11-7-4	1	39
Richardson	15-7-4	2	520
Risenhoover	14-7-4	4	8
Robbins, J. M.	15-7-4	4	167
Robbins, Pearl	15-7-4	1	47
Rowe, I.	18-7-5	1	17
Rowe, M.	18-7-5	1	5
Shipshewano	19-7-5	4	59
Single.ary, D.	15-7-4	1	47
Singletary, F.	23-7-4	3	17
Singletary, T.	14-7-4	3	29
Tartar	15-7-4	2	2,212
Vieux, F.	14-7-4	1	9
Vieux, N.	13-7-4	1	Off
White, Roy	20-7-5	1	7
Wilborn, Mary	24-7-4	2	386
Wilborn, S. A.	24-7-4	6	748
Williamett	11-7-4	1	11
Youts, Charles	20-7-5	5	198
Youts, C. A.	19-7-5	4	365
Youts, H. E.	20-7-5	7	1,196
Magnolia-Pierce:			
Hubanks	17-7-4	2	793
McCulloch et al:			
Bruno	25-7-4	5	689
Smith	25-7-4	6	802
Mid-Continent:			
Decker	8-7-4	1	67
Robbins	9-7-4	1	17
Quinn	20-7-5	1	18
Mid-Kansas:			
Getzelman	25-7-4	4	652
Lunay	30-7-5	3	370
Minnehoma:			
Simms	16-7-4	3	250
Packard:			
Church	29-7-5	1	560
Panther:			
Town Lot	14-7-4	2	35
Phillips:			
Cherry	25-7-4	2	96
Gracye	2-7-4	1	42
Lydick	24-7-4	1	16
Stahl	30-7-5	4	206
Prairie:			
Desmond	25-7-4	4	72
Ellison	25-7-4	4	285
Gammon	30-7-5	8	668
Hembree, A. O.	19-7-5	4	472
Hembree	18-7-5	1	13
Linn	30-7-5	4	368
Smith	30-7-5	3	23
Wolf	29-7-5	4	1,062
Younts	19-7-5	4	166
Prairie et al:			
Davis	18-7-5	4	80
Nesbit	18-7-5	2	164
Pugh	7-7-5	1	21
Prairie-Shaffer-Independent:			
Cummings	17-7-4	2	278
Reagan	17-7-4	2	1,274
Rice	17-7-4	2	32
Pure:			
Brandenburg	21-7-4	1	219
Dodson	26-7-4	2	108
Thomas	26-7-4	4	1,441
Thrillkill	19-7-5	1	51
Tolen	1-7-4	1	86
Shaffer O. & R.:			
Cherry	23-7-4	4	159
Tolen	30-7-5	4	336
Shell:			
Hines	22-7-4	1	181
Smith	21-7-5	1	65
Stahl	30-7-5	1	35
Younts	28-7-5	1	23
Sinclair:			
Blandin	24-7-4	13	1,350
Brandenburg	7-7-5	3	615
Bruno	28-7-4	2	405
Coley	24-7-4	2	340
Gilbreath	25-7-4	2	780
M-Qua-Ka	11-7-4	1	75
Nadash	29-7-5	4	40
Necley	25-7-4	4	550
Neeley "B"	25-7-4	2	655
Nesbit	18-7-5	8	1,675
O-Kitchee	19-7-5	7	485
Sinclair et al:			
Kelly "A"	2-7-4	2	230
Skelly:			
Decker	16-7-4	1	131
Slick-White Eagle:			
Latimer	16-7-4	2	459
Superior:			
Caudle	13-7-4	2	35
Jackson	36-8-4	1	45
Texas:			
Cherry	25-7-4	4	215
Zoeller	30-7-5	1	30
Tidal:			
Smith	26-7-4	1	Off
Warner-Quinlan:			
Light	18-7-4	1	65
Westheimer-Daube:			
Freid	24-7-4	5	433
Garrett	23-7-4	2	48
Westheimer-Daube-Gypsy:			
McGee	23-7-4	5	69
Wyatt:			
Fee	10-7-4	1	17
Total		433	49,405

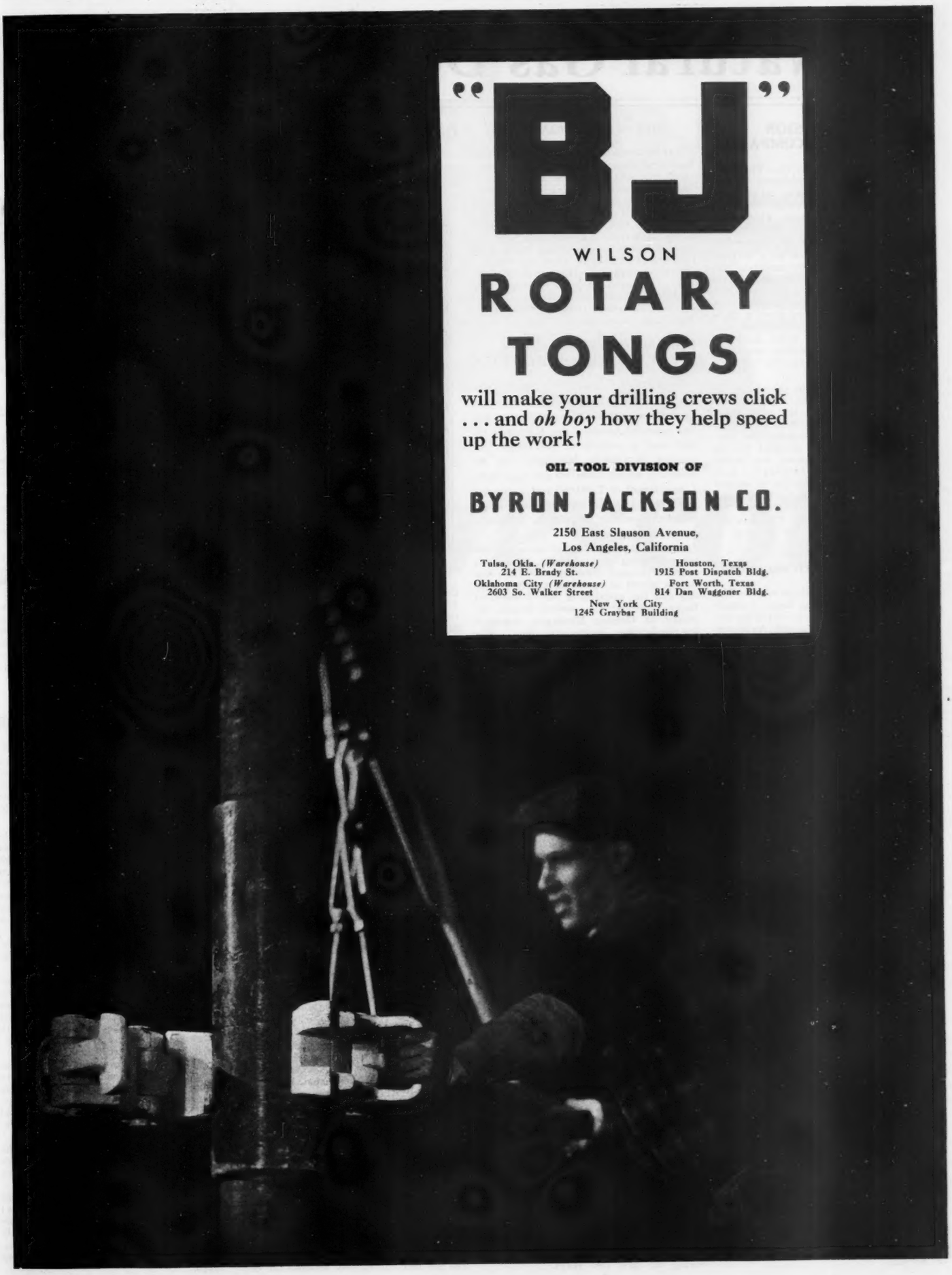
PRODUCTION OF SEMINOLE POOL

Average daily production of the Seminole area for the week ending November 13:

Little River Pool

Amerada:			
Nitey	2-7-6	3	280
Amerada-Wilcox:			
Fore	35-8-6	2	484
Barnsdall:			
Cotcha	23-7-6	3	521
Hotulka	22-7-6	3	481
Walker	4-7-6	1	13
Blackwell:			
Baker	11-7-6	5	463
Nitey	35-8-6	5	145
Talley	14-7-6	4	818
Thomas	11-7-6	1	Off
Bryan-Emery:			
Carter	4-7-6	1	13
Carter:			
Cotcha	23-7-6	3	112
Cudjo	23-7-6	2	97
Factor	26-7-6	1	10
Fish	36-8-6	3	254
Harjo, C.	11-7-6	3	1,644
Harjo, M.	13-7-6	4	283
Jackson	11-7-6	5	1,500
Larney, B.	26-7-6	2	254
Larney, J.	24-7-6	4	1,062
Lena	10-7-6	1	287
Moore	11-7-6	2	101
Tewee	14-7-6	6	609
Thomas, M.	11-7-6	1	216
Walker	24-7-6	1	1,912
Wilson	12-7-6	1	110
Champlin:			
Tewee	14-7-6	3	763
Continental:			
Cosar	36-8-6	7	673

(Continued on Page 122)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Oklahoma City (Warehouse)
2603 So. Walker Street
Fort Worth, Texas
814 Dan Waggoner Bldg.
New York City
1245 Graybar Building

Natural Gas Developments

KANSAS COMMISSION AFTER GAS COMPANIES

TOPEKA, Kans., Nov. 16.—The Kansas Public Service Commission is getting ready to ask ouster proceedings against 29 gas distributing companies and one pipe line company which have failed to respond to the questionnaire submitted last August by the commission.

The questionnaire asked for a detailed statement of the financial condition and business of each of the companies operating in Kansas. Most of the companies filed their answers to the interrogatories promptly and a few were given a little extra time to file their answers. But there are 29 companies which have not filed any answers or submitted any statement relative to the information the commission desired.

The notice just sent to the companies advised that unless the reports were filed by November 22 the commission will ask the attorney general to proceed against each of the companies for failure to file statements required by the commission. The punishment for failure to file the answer may be fines for each day the companies have failed to answer or it may be complete ouster from doing business in Kansas.

The commission set the Wichison Industrial Gas Co. case for hearing at Wichita, November 20.

FORT WORTH RATE DECISION

FORT WORTH, Tex., Nov. 16.—The Fort Worth Gas Co. has begun a study to determine the extent to which its domestic gas rates will be raised. Authority for an increase was given by three federal judges. An injunction was issued restraining the city from interfering with the utility raising the rates.

Whether the long-fought case is at an end or not was not known. Both the city and the utility were claiming victory. The city maintained that the court upheld W. H. Sanford, special master in the case, in the major issue by setting the fair valuation of the company's plant, properties and business at $4,134,378 and minimized the effect the court's grant of a 4 instead of 2 per cent return for depreciation reserve.

HUGOTON GAS FIELD

A gas field that promises to supply many southwestern Kansas towns with fuel, is being developed in Stevens County, of which Hugoton is the county seat. Two gas wells with a combined open flow of 30,000,000 to 40,000,000 feet daily are providing gas for Elkhart, Rolls and Hugoton, with a pipe line under construction to Dodge City.

Because it is situated in a remote section of the State, the Hugoton gas field has received little attention, many operators are not even aware of its existence. Three tests now are drilling and three are preparing to start.

Benedum & Trees' No. 1 Grandy, Section 3-35-38w, is almost to the gas sand. Another test by Benedum & Trees is to be drilled west of this location several miles. In Section 29-33-36, Ed McKenna of Wichita and associates' No. 1 Carpenter is drilling below 1,600 feet.

GAS FIND IN VIRGINIA?

RICHMOND, Va., Nov. 16. — Clinch Valley train crews of the Norfolk & Western Railway running out of Norton, Va., report considerable excitement in the Appalachia neighborhood caused by the reported discovery of natural gas. When a match was struck to the gas fumes, flames shot up higher than a man's head, is the report. The strike is 2 miles west of Norton.

TIFFIN INDUSTRIAL GAS

TIFFIN, Ohio, Nov. 16.—The Tiffin Industrial Gas Co., a recently incorporated organization of local business men, has just completed laying lines to convey gas from the Liberty Township Field north of this city to the mains of the Ohio Fuel Gas Co. to be delivered to Tiffin industries. The company also has several hundred acres under lease with two strings of tools in operation. Officers of the company are: Herbert E. McKinney, president; John Dreitzler, vice president; Walter C. Rohrbacker, secretary; F. R. Miller, treasurer; and R. B. McKinney, manager.

CONSUMPTION OF GAS IN MUSKEGON DISTRICT

MUSKEGON, Mich., Nov. 16.—Daily sendout of the West Michigan Consumers Co., the co-operative manufacturers gas line operated between the Muskegon oil field and a number of the largest industries in Greater Muskegon, has increased to nearly 5,000,000 and may reach a new record of 7,000,000 feet a day before the close of the coming winter months, according to John L. Robinson, general manager.

Increased production at some of the manufacturing plants which have been supplied through the company's line since it was placed in operation nearly a year ago and the addition of the Brunswick-Balke Collender Co., second largest industry in Greater Muskegon, accounts for the increase.

The Brunswick plant has a daily consumption of about 1,500,000 feet of natural gas. The Muskegon Traction & Lighting Co., which supplies the domestic customers, has been taking about 800,000 feet a day from the company in addition to about 500,000 feet a day run through its own pipe line from a lower Traverse gas well of the Lima Oil Corp.

The Shaw-Walker and Amazon Knitting Mills, two of the largest industrial plants on the West Michigan Consumers Co.'s line, have been taking a peak load of about 400,000 and 350,000 feet daily, respectively.

The amount of boiler gas consumed also is increasing with the approach of colder weather and is expected to continue to increase. If the Campbell, Wyant, Cannon Foundry Co. were taking a capacity load, about 2,000,000 feet a day would be added to the present sendout for a high record of 7,000,000 feet for the company.

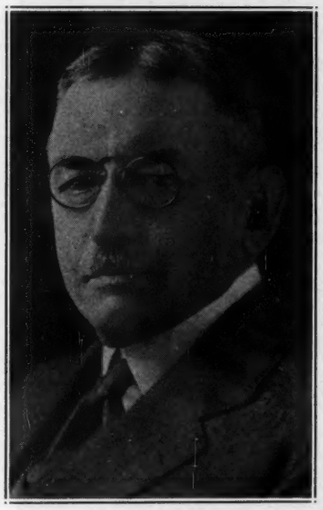
The Muskegon Pipe Line Co. continues to send out more than 5,000,000 feet a day of which 4,500,000 feet goes to its largest consumer, the Central Paper Co. Operations at this plant are more steady than any other industry in Greater Muskegon.

The Continental Motors Corp., Muskegon's largest industry, is estimated to be taking 2,000,000 feet a day from its wells. The Brunswick-Balke Collender Co. previously was supplied by the West Michigan Consumers Co. It is estimated that the Continental plant would be using between 4,000,000 and 5,000,000 feet a day if it were running at capacity with the associated plant of the Lakey Foundry & Machine Co., a large consumer of gas.

The West Michigan Consumers Co.'s supply comes from gas and oil wells of the Muskegon Oil Corp. and its subsidiaries and from the Dixie Oil Co. Together these companies control about 85 per cent of the proven territory in Muskegon Township, where the largest Dundee gas wells have been brought in during the past two years.

GAS ENGINEERS JOIN COLUMBIA CORPORATION

William Hutton Blauvelt has been appointed manager of gas engineering of the Columbia Engineering & Management



W. H. Blauvelt

Corp., a subsidiary of Columbia Gas & Electric Corp., 61 Broadway, New York City. For the past seven and a half years, Mr. Blauvelt has been engaged in consulting engineering work, specializing in

C. R. Bellamy

problems pertaining to coal, gas and oil. During this period he has served many leading gas utilities and has taken an active part in the development of the gas business. With the acceptance of his new position, Mr. Blauvelt closes his consulting engineering offices at 120 Broadway, New York City.

Charles R. Bellamy, who has been associated with Mr. Blauvelt in consulting practice has joined the organization of the Columbia Engineering & Management Corp. as gas engineer with headquarters at 61 Broadway, New York City.

WACO RATE ADJUSTED

WACO, Tex., Nov. 16.—Settlement of the gas rate controversy between the city of Waco and the Texas Cities Gas Co. was announced, following a session of the city commission.

Contention for a rate of $1 for the first 1,000 feet, with 67½ cents additional for each additional 1,000 feet for domestic consumers was made by the city. The basis on which the settlement is made provides that the first 700 feet shall be furnished for $1, a rate of 67½ cents to apply up to 20,000 feet, 65 cents for the next 10,000 feet, 60 cents for the next 20,000 feet, all over 50,000 feet to be furnished at 50 cents per 1,000 feet.

It is estimated by City Manager E. E. McAdams that Waco gas consumers, with the new rate effective as compared with the present rate of 90 cents per 1,000 feet flat, will save $73,000 a year.

COLUMBIA SUBSIDIARY HAS VIRGINIA PLANS

RICHMOND, Va., Nov. 16.—A representative of the United Fuel & Gas Co., a subsidiary of the Columbia Gas & Electric Corp., appeared before the Pulaski, Va., town council and was heard relative to the contemplated plans of his company making application for a franchise to furnish natural gas in the city. No action was taken by the body, other than directing the representative, if he desired to make application for a franchise, to present his proposition in writing for consideration at a subsequent meeting of the council.

This is the company which has announced its intention of bringing natural gas by mains from Floyd County, Kentucky. The meeting was presided over by Mayor E. W. Calfee, with six of the eight members of the town council in attendance.

LOUISIANA TOWNS BUSY ON NATURAL GAS PLANS

LAFAYETTE, La., Nov. 16.—Officials of 15 cities throughout southern Louisiana, joined by representatives of gas and pipe line representatives from upstate companies, are continuing their efforts to swing a natural gas service into this section.

The movement and call to mobilize public interest in gaining the service was launched by Mayor Leon Locke of Lake Charles and Mayor J. Gilbert St. Julien of Lafayette. Their program was heartily endorsed by other executives of the southwest. According to Mayor St. Julien 15 cities have definitely joined the movement.

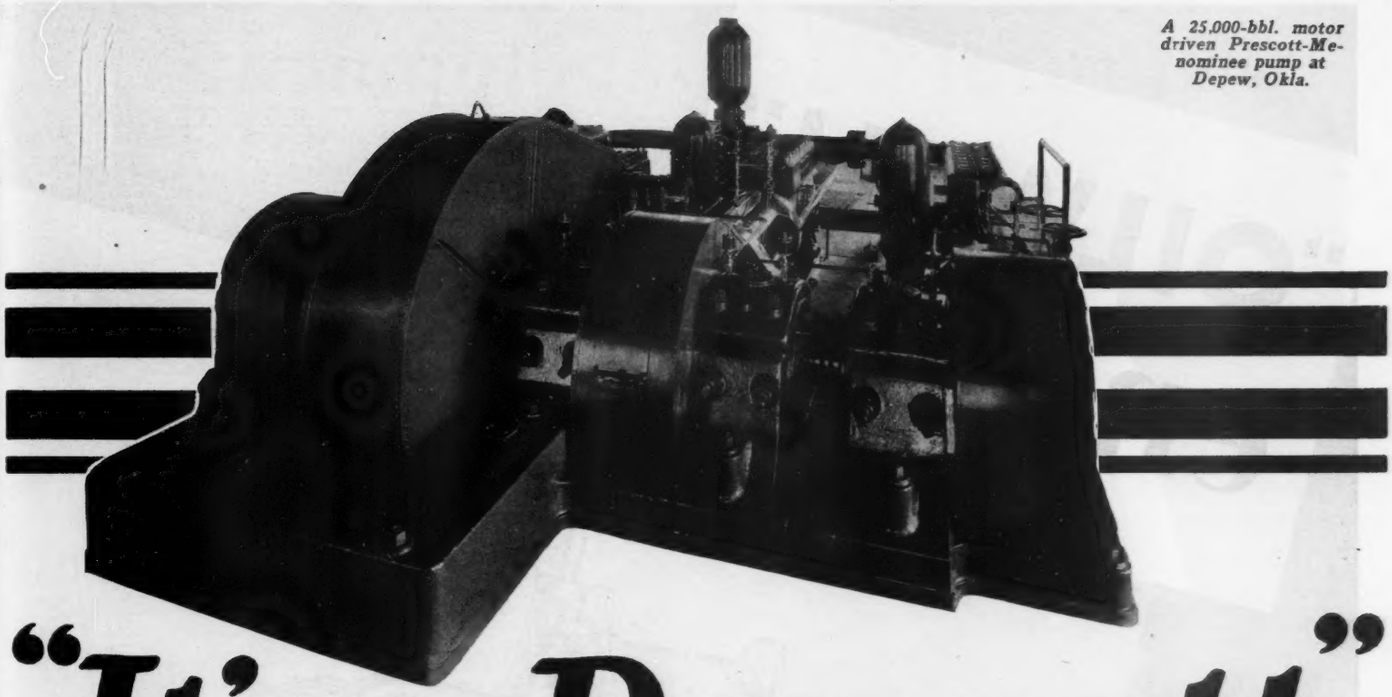
F. V. Mouton, secretary-manager of the Lafayette Chamber of Commerce, declared:

"We have over 400,000 people in this southwest Louisiana country within 150 miles east and west between Lake Charles and Morgan City and south of Vernon and Rapides Parishes to the Gulf, with 48 cities and towns and more than 6,000,000 acres of fertile land.

"The cotton, sugar cane and rice industries, sugar refineries, oil mills, rice mills, salt plants, cotton gins, canning factories, syrup mills and other industries would be large consumers of natural gas, in addition to a large domestic consumption."

He said that in gaining service for the cities it was hoped that similar service could be brought to the rural districts by branch lines.

The mayors of the following cities joined in the call for the conference: Lake Charles, Lafayette, DeRidder, Morgan City, Welsh, Marksville, Eunice, Abbeville, Crowley, DeQuincey, Opelousas, Rayne, Baldwin, New Iberia and Jennings.



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Not only the tremendous saving in power, but the ruggedness and reliability of Prescott-Menominee Oil Field Pumps have made them the popular choice of men who *know* good pumps.

Full information and data on request.

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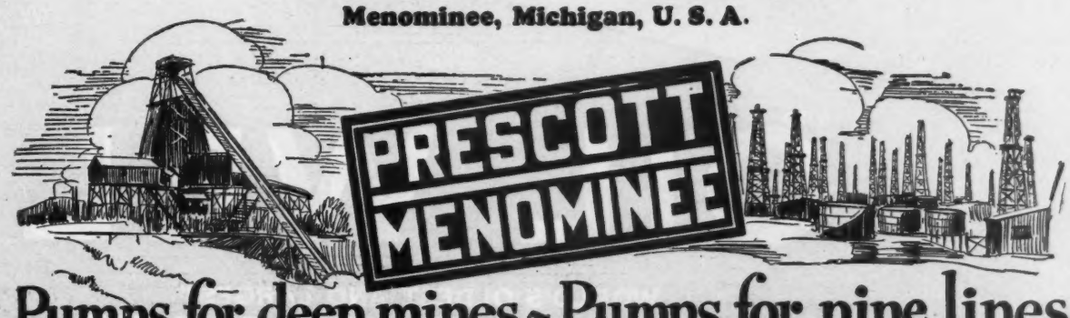

Pumps for deep mines ~ Pumps for pipe lines

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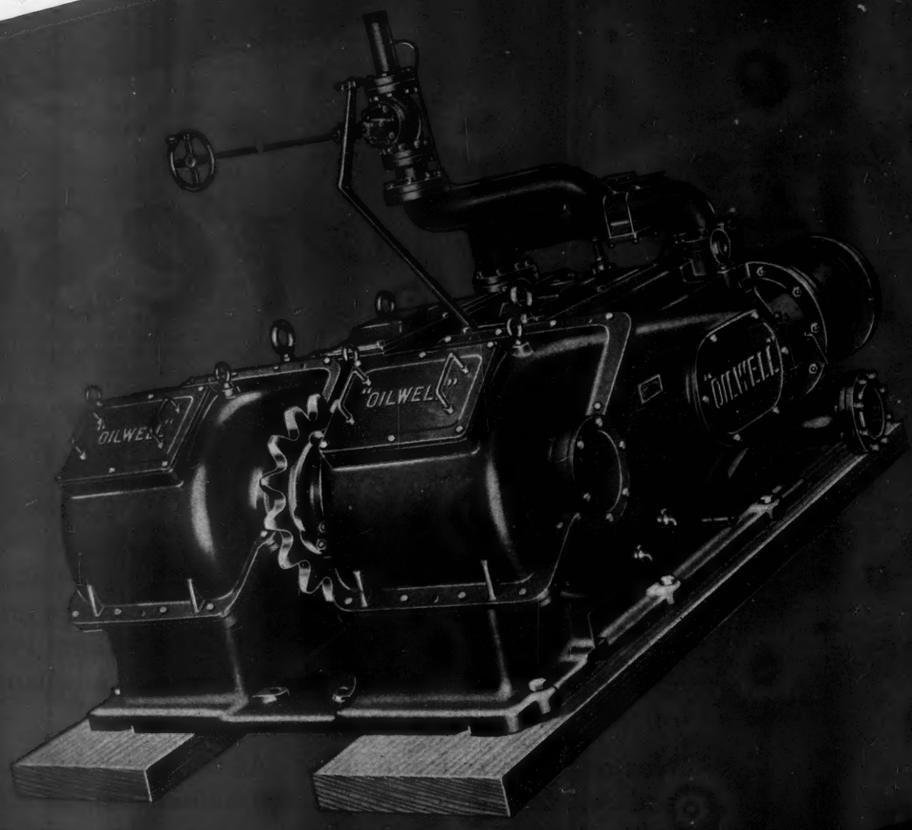

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THE "Oilwell" 12" x 12" Twin Cylinder Engine is a compact unit, ruggedly constructed. All working parts operate in oil baths, insuring smoother performance and longer life. These parts are fully enclosed, making the engine safer for inspection and adjustments. No protection from weather is necessary. Crank shaft is mounted in heavy duty Timken roller bearings, giving additional power and capacity. Both cylinders are controlled by one throttle. Designed for 250 pounds steam pressure.

"Oilwell" also makes an 11" x 11" Twin Cylinder Engine and a 12" x 12" Single Cylinder Engine—both of the enclosed type.

For complete information on "Oilwell" Twin Cylinder Engines, inquire at any of our branch offices or write for Bulletin No. 70.

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Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

CRACKING NATURAL GAS FOR HYDROGEN

Have you any references to methods for making hydrogen from natural gas? I understand that there is a way of cracking gas for this purpose.—P. S. N.

There are numerous patents which have been granted for the cracking of natural gas; some of these are briefly mentioned in an article by J. A. Yunker, in The Oil and Gas Journal, May 9, 1929, and this article gives the details below:

"In Louisville we have perfected a method for completely cracking natural gas to hydrogen and carbon at what are economic space velocities. Using standard blue water gas equipment, we have been able to produce a gas containing 90 per cent of hydrogen and less than 1 per cent of hydrocarbons. We have also been able to recover 7 pounds of carbon black, which has been passed on by one of the rubber companies as suitable for the manufacture of tires, per 1,000 cubic feet of natural gas processed.

"The experimental work was done in a 9-foot water gas set and since several million cubic feet of gas was made and almost a ton of carbon black recovered for testing purposes, we believe we can safely say that the process has passed beyond the experimental stage and is ready for use wherever its results are of value.

"A bed of coke in the generator is blasted in accordance with water gas practice to a temperature in excess of that of the decomposition of methane. The air is then shut off and natural gas turned into the generator in place of steam and the stack valve closed, permitting the gas to pass through cooling coils to the carbon traps and thence into a holder.

"Results obtained in the tests indicate that the capacity of a generator for the production of the cracked gas is approximately its capacity for the production of blue water gas. The amount of the cracked gas that will be produced from a cubic foot of natural, depends, of course, on the composition of the natural gas used and with the 1,130 B.t.u. gas used at Louisville, averaged around 2.25 cubic feet. About 15 pounds of coke was used per 1,000 cubic feet of natural gas cracked."

SYNTHESIS OF ACETYLENE FROM GAS

Would the decomposition of natural gas at high temperatures, and with the exclusion of air, make it possible to convert a part of the gas into acetylene? —H. M. C.

The literature and books on organic chemistry show that some of the hydrocarbons normally present in natural gas and industrial gases may be changed, under proper conditions, so that acetylene may be obtained.

An English patent, recently granted to P. H. Hull, concerns a process for making acetylene from coke oven gas and a similar method would probably give good results with natural gas. The Hull process is outlined as below.

In the production of acetylene by the passage of gaseous hydrocarbons through an electric discharge, the gases are passed into the discharge zone with a velocity of 800 to 900 feet per second so that a high degree of turbulence is produced. The treated gases are rapidly conducted from the discharge zone. The arc is struck between a hollow electrode and a rod electrode. The gases are introduced through a tube arranged coaxially with the hollow electrode and pass through the arc into an inclosed chamber. The gases may return through the arc and pass away through the annular space between the entry tube and the hollow electrode. The electrodes are of carbon and the hollow one may be rotated. The chamber may be of aluminum. Coke-oven gas freed from sulphur compounds and containing 25-35 per cent of methane is passed through an arc operating at 4,000 volts and 40 cycles and yields 3 to 5 per cent of acetylene which passes to an absorption tower.

KNOX PROCESS FOR VAPOR PHASE CRACKING

I would appreciate any information you may be able to give me, especially from an investment standpoint, regarding the Knox process, a true vapor phase process of cracking oil, I believe?—H. S.

We cannot give an opinion concerning investment values but trust the description following will be of service:

The Knox process for vapor phase cracking makes use of the principle of direct internal heat application. An experimental plant was constructed and operated by the Petroleum Conversion Corp. at Texas City, Tex. This process was described in some detail in The Oil and Gas Journal July 12, 1928, page 146, and the material below is extracted from this article.

It is claimed in the article that the utilization of direct internal heat application results in an even distribution of heat and that the final product is evenly cracked without the formation of excessive gas and carbon.

The heat generators are similar to blast furnace stoves and a device is employed for the continuous carbon removal. Units are suggested having a capacity of 2,000 to 4,000 bbls. of gasoline per day, three men being required for a 2,000-bbl. unit. The system, as described in this article, is arranged as a closed cycle.

A noncondensable gas serves as heat carrier, being heated continuously by passage through the heated brick checker work of hot blast stoves. Four stoves comprise the heating element of the average 2,000-bbl. plant, and are operated so that each stock is fired three hours, then furnishes heat to the carrier gas for one hour. This arrangement permits slow firing of the stoves, thus insuring efficient combustion, low heat losses up the stack and even heating of the checkers.

During the heating period of the stove combustion takes place in the central combustion chamber, combustion gases pass upward through the center flue and emerge into the top dome; there the gases turn downward and pass through the checker work imparting their heat to the firebrick composing the checker work. Combustion gases pass out of the stove through the side opening marked chimney valve. A portion of the flue gases are recirculated in the stove by a standard recirculating system in order to provide combustion gases with a moderate temperature. The excess gases are passed through an air preheater and heat exchanger and then up the stack.

At the end of the firing period the top checker work temperature is 1,800-2,000 degrees Fahrenheit and the bottom temperature 800-900 degrees Fahrenheit. At these temperatures the fires are cut; the stove is purged of products of combustion and residual air, built up to system pressure with carrier gas and then shunted onto the system with the spent stove. The latter is then cut from the system, discharged through a cooler into a gasometer, purged of combustible gas and fired, thus completing the stove reversal.

The carrier gas emerges from the stove heated to 1,600-1,800 degrees Fahrenheit. As 1,400 degrees Fahrenheit is the maximum temperature desired on the gas entering the reaction zone, sufficient 575-degree Fahrenheit carrier gas from the heat exchanger (oil to gas) is by-passed into the hot gas main to maintain a constant temperature of 1,400 degrees Fahrenheit on the total carrier gas entering the reaction zone.

It is claimed that the small quantity of carbon formed is in a very finely divided condition, almost identical with a commercial grade of lampblack.

The gasoline is taken off by means of a rectifying column. The carrier gas and fractionated gasoline vapors pass through condensers from which the condensed gasoline passes to an accumulator.

TREATING BRIGHT STOCK

After the acid treatment of bright stock is it best to wash out most of the acid, or is it just a short water wash to collect the sludge which may remain in the oil sufficient before neutralizing? We find that the color is good before neutralizing but after it is darker. At what temperature is it best to wash and add the neutralizing agent?—C.H.K.

The modern practice is to treat the bright stock with acid and the small quantity of acid that may remain in the oil after settling is removed by fine fuller's earth and the contacting clay. It is generally true that the color is darker after the treatment with an alkali but the color is restored after the filtering operation.

Treatment of the oil with acid seems to vary between 120 and 150 degrees Fahrenheit, with a temperature close to 135 to 140 degrees being preferred by many operators. The oil may be given a light water acid wash and then treated with the strong acid. About 30 to 40 pounds of 66 acid is applied in two dumps. Then the mixture is permitted to settle after which the sludge is drawn off. Next a small quantity of finely powdered clay is added, usually not more than one to two pounds per barrel, and the mixture mixed by a stirring device and this is also drawn off after settling. The contact clay is added to the sludge-free oil, the quantities of which vary with the oil and the quality of the clay, and then well mixed, excluding air, while held at a temperature of 300 degrees Fahrenheit and higher. After this operation the mixture is filtered through a press filter.

BUTANE AND OIL FOR ENRICHING GAS

You answered J. H. M. in the October 24 issue about the use of propane and butane for enriching artificial gas. Have you any data comparing the quantities of gas oil and butane that may be required under similar conditions for this purpose?—K. R. W.

The quantity of low B.t.u. gas, commonly called blue gas, obtained from a gallon of oil will vary in regular plant operation somewhere between 95,000 B.t.u. per gallon and 110,000 B.t.u. per gallon. The volume of gas that may be obtained from a fixed quantity of oil varies with the character of the oil and the type of the oil. Calculations based on molecular formulas are not reliable but the ordinary gas recovery is from 55 to 70 cubic feet per gallon of oil.

The heating value of commercial butane is 3,200 B.t.u. per cubic foot, or at the rate of 32 cubic feet to the gallon, is equivalent to 102,400 B.t.u. per gallon, all of which is available in butane enrichment, but, as above indicated, efficiencies with oil vary.

There is an article on this subject by E. L. Fisher in American Gas Association Report of 1929 Water Gas Committee, and the comparative figures, together with the calculation outlined, are from this source. Assume a generator gas of 280 B.t.u., oil efficiency 102,400 B.t.u. per gallon, volume of oil gas per gallon at 63 cubic feet, and B.t.u. of finished gas to be at 550. Then the B.t.u. of the oil gas is

$$\frac{102{,}400}{63} = 1{,}625$$

Now let x equal the volume of gas per 1,000, then

$$1{,}625x + 280(1-x) = 550{,}000$$

from which $x = 214$ cubic feet of oil gas, or

$$\frac{204}{63} = 3.23 \text{ gallons of oil per } 1{,}000.$$

Now let us assume we mix this same 280 B.t.u. blue gas with butane to obtain the same B.t.u. of finished gas. We have oil efficiency 102,400, volume of gas per gallon 32 cubic feet, finished gas 550 B.t.u., and B.t.u. of butane 3,200.

Let x equal volume of butane gas per 1,000, then

$$3{,}200x + 280(1-x) = 550{,}000.$$

From which

$$x = 92.5 \text{ cubic feet or } \frac{92.5}{32} = 2.89$$

In the case of oil carburetion we have a gas composed of 204 cubic feet of oil gas of 1,625 B.t.u. and 796 feet of blue gas of 280 B.t.u. per 1,000, or 20.4 per cent of gas by volume and 79.6 per cent blue gas. With butane we have a gas containing 92.5 cubic feet butane of 3,200 B.t.u., and 907.5 cubic feet blue gas of 280 B.t.u., or 9.25 per cent by volume of butane and 90.75 per cent of blue gas.

It will readily be seen that in the case of oil carburetion the B.t.u. supplied by the blue gas is $.796 \times 280 = 223$ B.t.u. per cubic foot of finished gas and the oil supplies $550-223 = 327$ B.t.u. In the case of butane carburetion the blue gas supplies $.9075 \times 280 = 254$ B.t.u. per cubic foot of finished gas and the butane $550-254 = 296$ B.t.u.

The reduction in gallons of butane per 1,000 over gallons of oil per 1,000 is not clear gain since we must make 907 cubic feet of blue gas per 1,000 cubic feet, where with oil we made only 796 cubic feet.

Griscom-Russell

Heat Transfer Apparatus

Tube Bundles readily removable

—one of the advantages of G-R Apparatus

THE tubes in all Griscom-Russell Shell and Tube Heat Transfer Apparatus can be readily inspected from both ends, and all tube bundles can be easily withdrawn from the shell for cleaning and repair by simply removing the head cover without the necessity of breaking any pipe connections.

This important feature of readily removable tube bundles is only one of the many advantages of G-R Heat Transfer Apparatus. Some of the additional advantages of this equipment are their provisions against leakage, high rate of heat transfer, low pressure drop, exceptional compactness and high salvage value.

These advantages are described in detail in a recently published bulletin which will be sent on request.

The Griscom-Russell Co.
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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

VARIATION IN POROSITY

You have stated that the porosity of the sands in the St. Louis and Carr City Pools is about 25 per cent. What is the difference between the sands in these pools and those in Pennsylvania, which have produced for over 50 years? What are the chances of deeper drilling in these two pools and striking a second Wilcox?—H. V. B.

Pore space in sands vary and are expressed in per cent of total volume of the sample examined. Records show that the sands in the Bradford, Pa., area vary in porosity from 10 to 23 per cent in the same sand body. The thickness of the sand body will also vary, so it is easy to understand that one that is 100 feet thick with 1 per cent porosity will have more voids per acre than another sand that is only 25 feet thick but has a porosity of 20 per cent.

Another factor in determining the amount of oil to be recovered is the saturation of the pore space with oil and gas. Bradford sand analyses show that some of those sands have from 34 to 65 per cent of the pore space filled with oil.

The sand bodies of the Pennsylvania fields are remarkably uniform in their grain size and this element has much to do with their ability to act as good reservoirs for the accumulation of oil. Their thickness varies from 25 to 65 feet.

The sand body of the Seminole City Pool, Oklahoma, is reported as 125 feet thick, but this department does not have a report on the thickness of the Wilcox sand in the Carr City and St. Louis Pools.

The Wilcox sand is found in the Ordovician formations, one of the oldest sedimentary rocks and close to the bottom of the series. In other words the basic rocks which were laid down in a molten state are not far below the Wilcox sand. This would seem to indicate that there is not much likelihood of finding production below the Wilcox in St. Louis and Carr City Pools, but in as much as the Wilcox sand itself was discovered in a formation that had always been assumed to be devoid of oil-bearing formations, it might be possible still to find some oil bearing sands below the Wilcox sands and it will remain for the drill to determine this, for while the geologist can outline structures it is impossible for him to state whether they are oil bearing without exploration with the drill.

Very deep holes are being drilled in Oklahoma now and it may be that some of them will penetrate through the Wilcox series and find oil at a greater depth. However, in the Carr City and St. Louis Pools where they have production in the Wilcox formation it is not likely that they will go back and redrill it to deeper levels until the Wilcox formation has given up its oil.

In Pennsylvania you probably will find that the granites are not far below the formations that are producing oil and gas. There have been some deep tests in West Virginia and you probably can get interesting information about the geology of Pennsylvania and West Virginia or other eastern states by addressing their geological departments.

OIL IN THE CAP ROCK

Is it a fact that oil ever is found above cap rock and even in the cap rock itself? I heard a statement that this was true and I challenged the statement, for my understanding always has been that you do not get the oil till after you have gone through the cap rock. Will you tell us what is the case?—A. T. S.

Oil reservoirs vary in their character and may be of the anticline, syncline, monocline type or a combination of these three types, and terraces. Domes also play their part in the formation of oil reservoirs and may be of the anticlinal, saline or volcanic type. Other fields are formed by the faulting of any of the above type structures and the oil sands may be found as lenses.

With these many types of structure suitable for the accumulation of oil or gas there will be many differences in details of the formations, but generally speaking it is necessary that there be some form of impervious layer on the top and bottom of the reservoir or the oil could not be retained in it.

This capping, however, does not of necessity have to be what your question would imply, if we consider that the cap rock is a hard type of formation materially different from the general type of formation penetrated in drilling to the oil sands.

Shales will form an impervious layer and do cover some sand bodies and form seals through which the oil and gas will not penetrate. In a faulted zone the sealing medium for the sand strata may be any type of impervious stratum that comes opposite the end of the oil sand that has been displaced by the movement of the formation caused by the faulting.

That oil may be in the formation immediately above the producing stratum is not impossible, for the heaving shales in some South Texas and Louisiana fields contain oil, but because of their nature do not permit producing wells to be finished in this shale formation.

It may be properly stated that in the majority of cases in fields that produce from oil sand formations there is a capping above the gas and oil body penetrated in order to permit the oil to flow into the well, but like all other rules there are exceptions. The underground condition of necessity must be such that the gas and oil cannot migrate over too large an area or they would not be found under conditions necessary to make the wells productive.

HOLE FULL OF WATER

Will you kindly give us the following information? A hole standing open and full of water, the water covering the oil sands which were exposed to the water, no casing in the hole, for a period of three years. Would it be absolutely certain that the water pressure had pushed the oil back into the sands, and if so would a shot have any effect on getting the oil to run back into the hole? There has been about 300 feet of water above the oil stratum, the hole being an 8-inch one. Or could the oil sand have sealed itself with the water covering same?—B. K.

Three hundred feet of water above the oil sand would exert a pressure on that sand of approximately 129.9 pounds per square inch.

It is hardly probable that shallow wells would exert enough rock pressure on the face of the hole to drive this water out of the sand, for it would penetrate to some distance in a porous stratum.

It is assumed that this water is surface water that has run into the hole while it was left open. It is suggested that the hole first be bailed out and made as dry as possible. When this has been done water in the sand would tend to run out into the hole and if there is any pressure on the oil back in the sand it would follow the water into the hole.

If, on the other hand, this is formation water, or water that accompanied the oil in this particular stratum it is likely that the water has pushed in ahead of the oil and has effectively shut it off. In the latter case a shot might help, but it is doubtful, for it is quite likely that formation water would drown out the oil and force it back in the formation as the oil is lighter than the water and can be moved by it.

If you can tell more about the depth of the hole, the type of oil sand encountered, dip of the formation and thickness of the sand body, with the gravity of the oil and whether gas was present when the oil sand was first opened up, this department might be able to give you additional information.

WHY WAS IT CALLED THAT?

CASING DOG

The word dog apparently was introduced into the English language to describe a powerful breed of hounds, and this word has been used in combination with others to describe various mechanical devices usually consisting of a tooth or claw used for gripping or holding. Thus, casing dog is a gripping device for holding casing.

FIGURING ON ROYALTIES

I would very much appreciate your advising me how the base price on royalty in a producing field is arrived at; how royalty is figured on a lease in a field, some distance from production, where no oil has been found but where drilling has started, and also how royalty is figured at per acre on wildcat acreage.

What is the amount of oil that an acre of land in a proven field where wells are approximately 3,000 feet deep will produce?—B. J. O.

In determinig the value of royalties in proven oil territories—that is, "producing royalties"—the estimated amount of oil that can be recovered and the estimated length of time it will take to recover it are considerations of prime importance. These factors in turn involve a knowledge of the thickness and porosity of the producing oil sands, their production history, deeper sand possibilities, the grade of oil produced, pipe line facilities, production trends and the possible locations for additional wells.

The value of royalty in a district where no oil has been found, but where one or more test wells are being put down, is obviously greater than in a similar area where no drilling is in immediate prospect. Nevertheless the royalty in each case is of the "nonproducing" type and the price paid for an interest in such royalties would be whatever the buyer and the seller agreed upon in individual bargaining. No fixed rule prevails. The stronger a man's belief that drilling would prove the existence of oil in profitable quantities the more he would be willing to pay for a royalty interest.

Edwin I. Reeser in his book, "Oil Royalties," says in this connection:

"When the investor who is not in close touch with the oil industry buys nonproducing royalty, its value can best be determined by three things: First, the proximity of dry holes; second, the proximity of production; third, surface and subsurface geology. In considering the geological character of a lease under which royalty is owned it must be taken into account that hardly two companies agree on the geology of any one unproven area. . . . In the purchase of producing royalties their value is best determined by the expected yield of oil."

It is assumed you understand that an oil royalty denotes the landowner's one-eighth of the oil produced from his land and that it is allowed him by the company drilling the wells and producing the oil from his property. Fractional parts of the landowner's one-eighth royalty are termed "royalty interests."

Your question concerning the amount of oil that an acre of land will produce is unanswerable. A well 3,000 feet deep may produce 10,000 bbls. a day, while another of the same depth 100 feet distant may produce half or twice that or nothing at all.

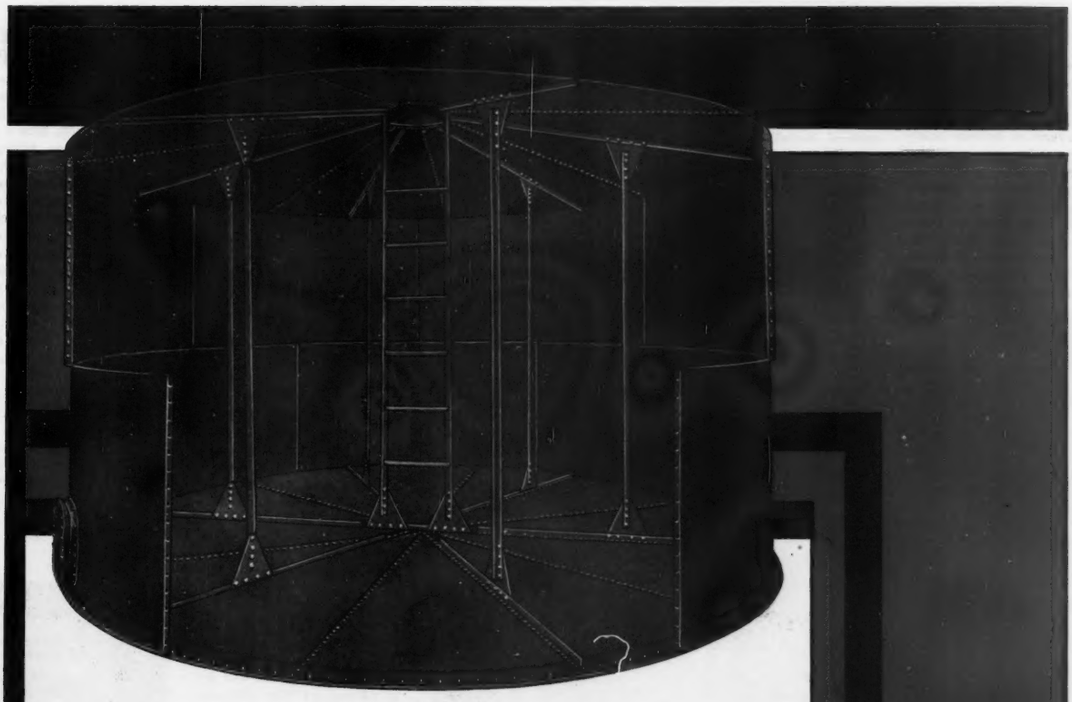
WHAT WORKING PRESSURE?

What is the smallest working pressure that would be required to force a 6-inch go-devil through approximately 4½ miles of 6-inch line pipe? This line pipe handles water only, and the sediment or formation on the inside is very soft. We are unable to find any information on this subject.—W. T. L.

This department is unable to find any formula covering your problem, but this practical suggestion may help:

Use for the first run through this line a go-devil that is set for about 5-inch size and after it passes through the line reset it to say 5⅛-inch diameter and run it again. In this way you will find the amount of material moved with the first and second runs and if you are still of the opinion that the line carries more sediment you can increase the diameter of the scrapers on the go-devil again and run it a third or fourth time.

Unknown factors as to the condition of the sediment, the gradients on the pipe line and the initial pressure available at the head of the line all make it difficult to state in mathematical terms what pressure should be used on the go-devel, but if the pump is now handling water through the line in question it would seem quite logical to assume that the go-devil would go through without trouble.



Inside Information

about B.S.&B.

Perfection Vapor Pressure TANKS

Look at these tanks from the inside. See how they are made. Learn why they are so strong, and air, water, oil and vapor pressure tight.

Notice the angle iron tie rods as well as the ladder, which also adds additional strength. In this 250-barrel tank shown, there are six such rods, and with the ladder, eight.

There are, you will notice, angles in the pie-shaped bottom to which the tie rods are bolted by heavy gussets. Likewise at the top, to the rafter angles.

The roof is segmental, and sloping. That prevents breathing losses as does the Thief Hole Pressure Vacuum Valve, which operates at sixteen ounces pressure, or four ounces vacuum.

The flange type construction is also a strength-giving feature. There are four layers of metal, plus our special packing, that make the tanks absolutely TIGHT. The metal is of copper bearing steel, and the tank is built in sections, allowing for portability.

Standard Equipment in *All* Oil Fields!

These tanks have been erected in virtually all Oil Fields in the Midcontinent and Rocky Mountain groups. They have proved their worth by the actual saving of oil and gravity, and by the actual automatic operation of the B. S. & B. Thief Hole Pressure Vacuum Valve.

[*May we further prove the actual value of the B. S. & B. PERFECTION Vapor Pressure Tanks? Ask for a man or a plan. Address Dept. B-6.*]

Black Sivalls & Bryson INC.

BARTLESVILLE - OKLAHOMA

EQUIPMENT AND SUPPLIES

NEW BRONZE BEARING IS SELF-LUBRICATING

A new self lubricating bronze bearing is announced by the Johnson Bronze Co., New Castle, Pa., makers of bronze bushings, bronze bearings, bronze castings, cored and solid bar bronze. According to P. J. Flaherty, president and general manager of the company, the new bearing provides for a uniform area of bearing surface on the pressure line, and insures an efficient distribution of lubricating compound. The compound used is also a Johnson bronze development.

The improved results are obtained by a new method of effecting indentations in the metal and by placing them on an angle of 30 degrees. According to the manufacturer, it is only by cutting these indentations that an effective receptacle can be formed for the lubricating compound. Interest in the bearing has been evinced by makers of machinery and parts subject to intermittent or periodical operation, such as brake levers, clutch levers, shock absorbers, rocker arms, slow running journals, starting motors, landing gears, guide rollers, sliding door rollers and the like.

BUSINESS NOTES

The Chicago Pneumatic Tool Co., New York, has opened a sales and service branch of its tool division in Oklahoma City under the management of E. E. Deacon. A complete stock of CP Tucone rock bits and parts will be carried.

Extending its service throughout the Gulf Coastal and Louisiana fields, Blackor Co., Los Angeles, Calif., is opening an office in Houston, Tex., according to Fulton Lane, general manager.

W. C. Fletcher Co., Inc., Indianapolis, has been appointed sales representative for Central Indiana, by the Bradley Washfountain Co. of Milwaukee. For Southern Indiana and Kentucky, J. F. Shouse & Co., Louisville, has been placed in charge of Bradley Washfountain sales.

The Pacific Oil Tool Co., Ltd., Los Angeles, Calif., has made some changes in its management. The present officials follow: President and manager, Walter T. Wells, formerly with Union Metal Manufacturing Co.; vice president, Judge Lee Champion, formerly active in Rocky Mountain fields; secretary and treasurer, Harry E. Hoffer, formerly with Wilson & Willard Manufacturing Co.; sales manager, Otto G. Keil, formerly with Link-Belt Co.; director, W. G. Lane, formerly with General Electric Co.

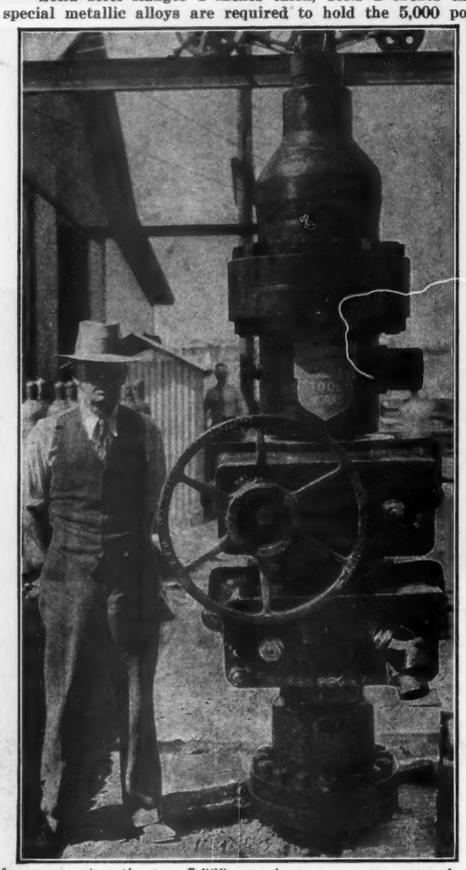
A seven-passenger Stinson Wasp monoplane has been delivered to L. B. and J. O'Neil, millionaire oil operators of Great Falls, Mont.

NEW VAPOR RECOVERY PLANT

A new factory has been completed by the Vapor Recovery Systems Co. in Compton, Calif., designed exclusively for the manufacture of vapor recovery tank systems under the direction of Frank V. Long, president, for several years an executive with the Brooks Engineering Corp. The company manufactures and installs the Varec tank equipment, including valve, regulator valves, fittings, tank gauges and other fittings required in the efficient recovery of vapors and in their proper distribution. Offices formerly in the Board of Trade Building, Los Angeles, have been moved to the plant location. The company completed more than 250 contracts during the last year.

SHAFFER MAKING HIGH-PRESSURE FITTINGS WITH 4-INCH FLANGES

Solid steel flanges 4 inches thick, bolts 2 inches in diameter, and gaskets of special metallic alloys are required to hold the 5,000 pounds pressure specified in an order for Warren control heads and other high-pressure fittings now going through the shops of the Shaffer Tool Works, Brea, Calif. Actual tests in the shop with a specially built hydraulic compressor pump which builds up a cold water pressure of 5,000 pounds per square inch, have proved the need of extra thick flanges and alloy steels in the studs and bolts, according to Shaffer engineers.



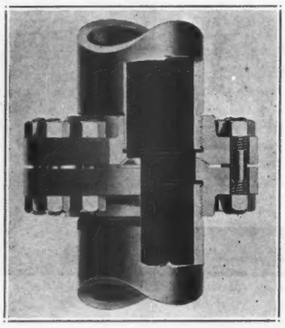
Extra pressures encountered at Kettleman Hills and two serious blowouts have influenced petroleum engineers and others responsible for drilling operations there to demand unusual precautions and tests for material to be used in that field. An idea of the size and construction of some of the fittings required can be realized by a glance at the picture, which shows a cellar assembly made by the Shaffer Tool Works, ready for shipment to the Standard Oil Co. for use at Kettleman Hills. W. D. Shaffer is shown alongside the fittings.

The assembly includes two Shaffer control gates, one fitted to close around drill pipe, and the other to function as a drilling valve, closing open hole. The design is so compact, according to the manufacturers, that the two 5,000-pound gates occupy approximately the same cellar room as one of the ordinary type valves.

Each set up of this size, 9-inch, weighs 4 tons, one such order each week being included in the regular schedule at the Brea plant, in addition to other business, American and foreign, in casingheads, flow beans and high-pressure equipment for all parts of the world.

MIDWEST JOINTS ALLOW PLIANCY OF ALIGNMENT

The improved standard Midwest joint and the Midwest screwed flange joint are used widely throughout the oil refining industry because no gasket is required



and because they permit flexibility in piping erection as a result of their having spherical contact surfaces.

In the Midwest screwed flange joint shown in the illustration the screwed flanges have regular Midwest male and female faces made on threaded pipe. The back face of the flange may be welded to the pipe. This joint is interchangeable with the standard Midwest joint. No gasket is necessary and piping need not be in accurate alignment.

CHAIN AGENCY FOR SOUTHWEST

D. Round & Son and the Cleveland Chain & Manufacturing Co., associated organizations of Cleveland, Ohio, have established an agency for the Southwest in charge of Russell Hobbs, whose headquarters will be in Dallas, Tex. The companies specialize in chains, chain hoists and tire chains.

SULLIVAN ADDS TO ITS PLANT

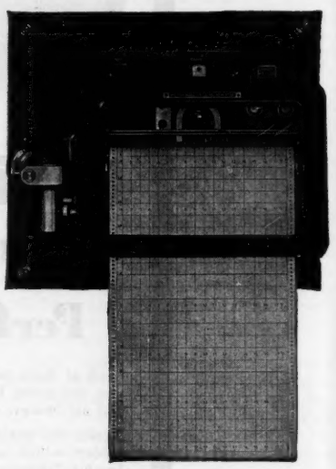
The Sullivan Machinery Co., Chicago, which manufactures air compressors, mining and quarrying machinery, coredrills, portable air compressors, concrete breakers, rock drills, portable hoists, etc., has completed an addition to its Michigan City plant. Machine tool equipment at both the Claremont, N. H., and Michigan City plants has been increased during the last year, and orders are already placed for additional tools, which will effect a larger volume of production.

RECORDING PYROMETER OFFERS IMPROVEMENTS

A new potentiometer recording pyrometer developed by the Wilson-Maeulen Co., New York, has a temperature record chart 12 inches wide, and shows other new features of mechanical and electrical design. When the measured voltage from the thermocouple changes as a result of temperature change at the thermocouple, the galvanometer pointer deflects in the corresponding direction.

At intervals of 10 seconds a boom descends and grips the pointer firmly while two sensing fingers, moving in a vertical plane, approach the pointer from each side, exploring for the location of the pointer, and if either finger finds the pointer deflected and away from its central or null position, a roller ratchet dog is released by the finger, causing a drum to turn.

By means of a violin string, wound around the drum and passing over pulleys at each end of the chart, and attached at opposite sides of a carriage, the motion of the drum in either direction is transmitted to the carriage which is



adapted to travel back and forth across the whole instrument. The carriage carries the pen which marks the chart in its travel, and a contact brush that rides on the potentiometer slide wire.

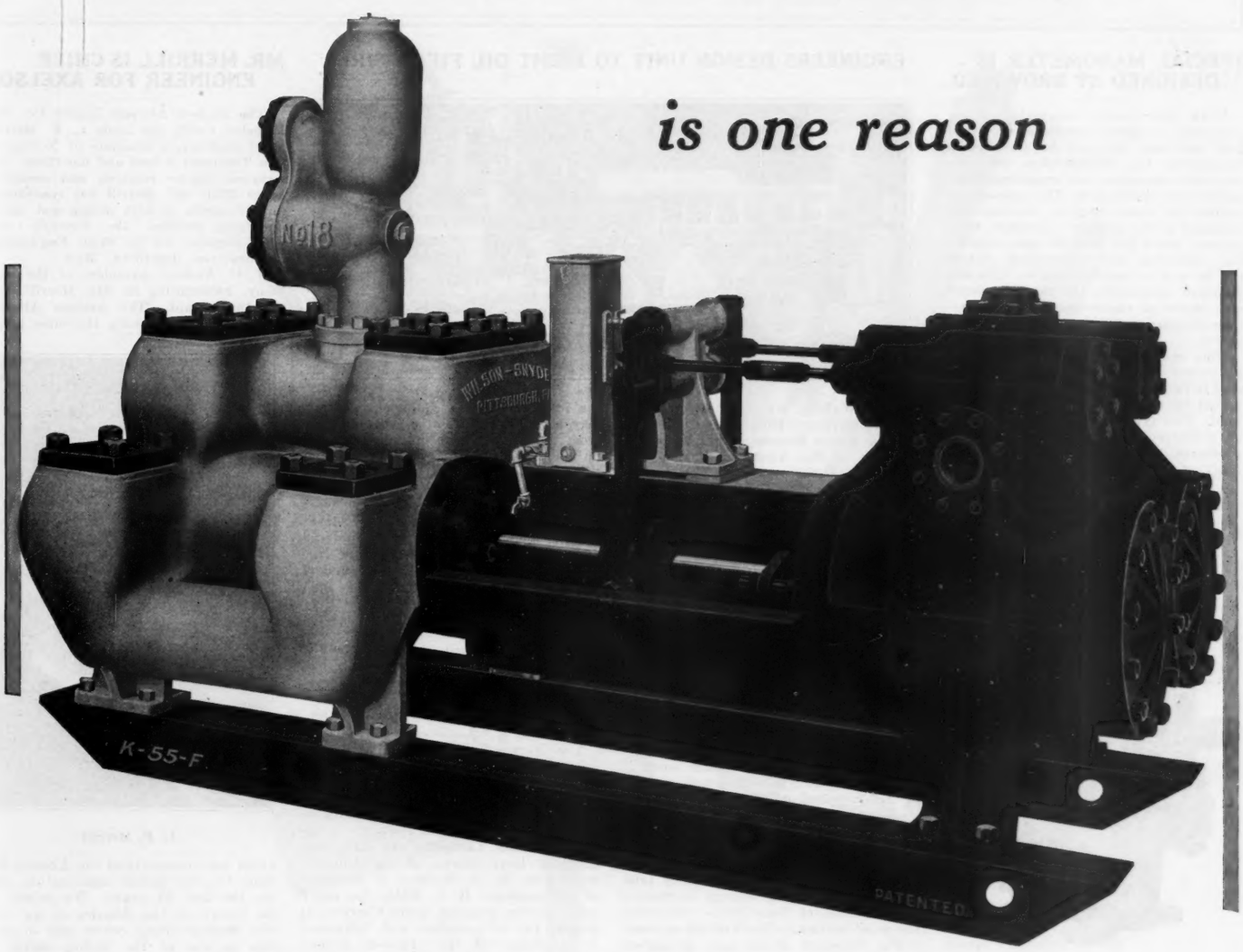
The selective operation of the drum's rotation, both in direction and extent, moves the contact on the slide wire so as to bring the galvanometer back towards its null or undeflected position, and at the same time moves the recording pan to record on the chart the temperature of the thermocouple.

Width of chart, which provides an exceptionally open scale, and legible printing of temperature lines and numbers on the chart, together with the bright and contrasting color of the ink used, makes it possible to read the chart easily. A choice of three chart speeds, three-quarter inch per hour, 1½ inches per hour and 3 inches per hour, permits the user to obtain the one most suitable for his needs. On operations where temperature changes are slow and long periods of time are involved, the slow speed condenses the record and makes observation of trends and cycles easier. For rapidly fluctuating temperatures and short cycles of operation, the faster speeds allow more detailed analysis of temperature changes.

The Natural Gas Equipment Co., Los Angeles, Calif., is distributing an unusually attractively printed booklet bearing the title, "Twenty-One Gas Burner Problems and Their Solutions."

Automatic Lubrication

is one reason



why 15 *deep* holes can be drilled with a Wilson-Snyder Slush Pump

WILSON-SNYDER

BUILDERS OF HEAVY DUTY PUMPS FOR OVER FIFTY YEARS

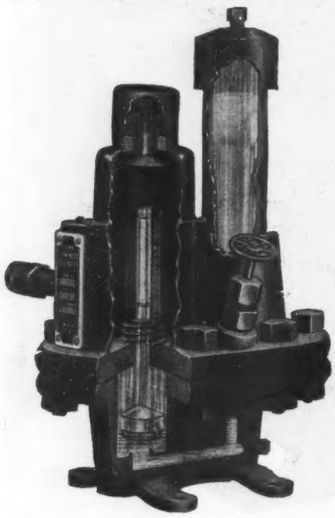
PITTSBURGH, PA U.S.A.

EQUIPMENT AND SUPPLIES

SPECIAL MANOMETER IS DESIGNED BY BROWN CO.

With the steadily increasing steam pressures a special manometer, Model 254, has been designed by the Brown Instrument Co., Philadelphia, Pa., for use under pressures not exceeding 1,500 pounds per square inch. This manometer utilizes the same range of mercury differentials as the company's standard manometer, Model 253, and the same indicating, receiving and integrating meters can be used in parallel with it. Like the standard manometer, all stuffing boxes and electrical connections in the pressure chamber of the manometer are eliminated.

This manometer, which is essentially a mercury-filled U tube, is made of forged steel in two parts. The two parts are connected by means of a tongue-and-groove joint. This type of joint permits the use of a narrow gasket with high gasket pressures, and also decreases the possibility of the gasket blowing out, owing



to its being held in place by the walls of the groove. The bolts joining the two parts are of ample size to give a sufficient factor of safety.

The manometers are placed under a 2,500-pound pressure test for a period of six hours. The high-pressure and low-pressure connections are made of one-half inch extra heavy pipe size seamless steel tubing. The equalizing valve, which is located in the manometer, has a monel metal stem and packing gland. This valve is of the needle type and eliminates any possibility of leakage between the high and low pressure sides of the manometer.

TRADE LITERATURE RECEIVED

Chains for almost every use are illustrated and described in an attractive catalog issued by the Cleveland Chain & Manufacturing Co., Cleveland, Ohio.

The General Electric Co., Schenectady, N. Y., is sending out new bulletins on constant-potential arc-welding sets, pressure governor, magnetic controllers, controllers for wound-rotor A-c. induction motors and automatic welding head and control.

"Pipe Welding with Stock Fittings in the Process Industries," is the title of an interesting 20-page bulletin prepared by Tube-Turns, Inc., Louisville, Ky.

The part which trucks and tractors play in the development of air transport is told in several interesting articles in the November number of the International Trail, published by the International Harvester organization, Chicago.

ENGINEERS DESIGN UNIT TO FIGHT OIL FIELD FIRES

R. B. Walters, safety engineer for the Indian Territory Illuminating Oil Co., and the Foster Petroleum Co., joined the engineer of the American Fomon Co., in designing this portable Fomon fire truck for combating fires in the oil field. The truck is equipped with a Barton portable pump driven by the truck motor, and will deliver 400 gallons of water per minute at a pressure as high as 200 pounds per square inch.

With four Fomon foam generators using twin foam chemicals this unit can produce approximately 4,000 gallons of foam per minute which, under ordinary conditions, will combat the most serious fire encountered in the development of a new oil field. Two of these units with the new Fomon portable foam towers can combat successfully a 55,000-bbl. tank fire. The unit has been adopted by the United States Navy for the protection of fuel oil storage. This truck is the first of its type owned and manned by an independent oil company and is a complete unit, being equipped with 500 feet of fire hose, a supply of Fomon twin generator chemicals, generators, nozzles, hand extinguishers, ladders, axes, bars, searchlight and water supply tank with a capacity large enough to produce 1,000 gallons of foam while connecting the pump suction to fire hydrant or pond.

The flexibility of the foam generators using twin chemicals was a deciding factor in selecting this equipment as they may be used in pairs at a great distance from the fire by operating one generator on the "A" chemical and the other on "B" chemical, thereby delivering foam solution to a given point then bringing the two solutions together and producing the foam as near the fire as possible as it is a known fact that foam produced and run through long hose lines or pipe lines breaks down rapidly and impairs the efficiency of the foam.

Mr. Walters, of the Indian Territory Illuminating Oil Co., and W. L. Walker American Fomon Co. factory representative in the Mid-Continent Field, predict that this type of fire fighting unit will be adopted widely.

CYPRESS TANK OPENS OFFICE

The Cypress Tank Co., Inc., with headquarters in Shreveport, La., has opened an office at 318 West Building, Houston, Tex. This company has a wood tank manufacturing plant and is distributor of the Columbian Steel Tank Co. products in Texas, Louisiana and Arkansas, carrying large stocks at its Houston warehouse. M. A. Stanton is president of the company. H. C. Elder, for many years district manager of the Continental Supply Co. in Louisiana and Arkansas, is in charge of the Houston district office.

REED ROLLER BIT OPENS PLANT IN OKLAHOMA CITY

The Reed Roller Bit Co., Houston, Tex., has established a service plant branch and warehouse at 1129 East G Street, Oklahoma City, to serve the petroleum industry of Oklahoma. Russell H. Giesey has been named branch manager for Oklahoma, succeeding E. E. Deacon, resigned. Frank P. Carr will be in the field, calling on the trade; Dan Delhomme will be branch engineer and Dallas J. Matthews, Jr., will be in charge of the Oklahoma City store. In this store will be carried Reed rock bits, reamers and rock core bits; Reed-Elliott soft formation core bits, Reed wire line bits, Barrett-Robishaw bits, Martin-Loomis automatic recording weight indicators, Calmec valves and Calmec protectors, and replacement parts.

MR. MERRILL IS CHIEF ENGINEER FOR AXELSON

The Axelson Aircraft Engine Co., Los Angeles, Calif., has made L. F. Merrill, chief engineer, a graduate of Northeastern Technical School and identified with aviation engine research and designing since 1921. Mr. Merrill has contributed improvements in both design and manufacturing practice. He formerly was chief engineer for the Stout Engineering Laboratories, Dearborn, Mich.

J. C. Axelson, president of the company, commenting on Mr. Merrill's appointment said, "The Axelson Aircraft Engine Co. is following the same policy

L. F. Merrill

which has characterized the Axelson Machine Co., its parent organization, during the last 38 years. We believe in the future of Los Angeles as an aviation manufacturing center and in aviation as one of the leading means of transportation in years to come. The company is building up what we hope will prove one of the outstanding organizations of its kind in the entire aviation industry."

PREHEATING TORCH OFFERED

When welding heavy pieces of iron and steel with the oxy-acetylene torch it is usual to preheat the section. The St. Paul Welding & Manufacturing Co., St. Paul, Minn., has used for years a portable hand pump outfit, which it has put on the market as the Torit 8-K. The torch throws a flame about 2 feet long. The tank of 10 gallons capacity is equipped with a double acting pump allowing for suction of either air or kerosene. The tank can be refilled while the torch continues to operate. The outfit being portable allows for use inside or outside the shop and in all weathers.

GOULDS TO HAVE WAREHOUSE

Goulds Pumps, Inc., Seneca Falls, N. Y., which maintains branch offices in Houston, Tex., and Tulsa, has completed arrangements to establish a warehouse in Tulsa with the beginning of 1930. The Tulsa office, now in the Kennedy Building, will be conducted in conjunction with the new warehouse in Archer Street. R. T. Roberts, manager in Tulsa, will continue in charge of the district, which includes Oklahoma, Kansas, Arkansas, Wyoming and western Missouri. Pumps especially adapted for oil field needs will be carried in the Tulsa warehouse.

Faster Drilling!

Straighter Hole!

Better Cores!

More Efficient Reaming!

CONTINUAL improvement to meet the changing conditions and requirements of oil well drilling operations enables H. C. Smith *Quality* Tools to hang up outstanding performance records almost every week. The illustrations here show some of the most recent developments of the H. C. Smith plant.

The *New* H. C. Smith Type "C" Drilling Bit with Roller Reamer Body. Makes straight hole fast. Eliminates reaming down to get new bit on bottom. A big advance in drilling bits. Can be run with side reamer or plain body.

H. C. Smith Type "C" Coring Outfit: Drop-forged steel. Renewable cutterheads. Recovers perfect cores in any formation a disc or fishtail bit will penetrate.

H. C. Smith Type "CI" Underreamer: An underreamer that won't stick in the hole. Hydraulic control insures expansion of roller cutters at any desired point in the hole.

The *New* H. C. Smith Draw Works Brake Attachment: The most valuable, practical safety device for modern drilling. Leverage ratio increased approximately 3 to 1 over ordinary brakes. Eliminates kick-back of brake rod and lessens labor and shock ordinarily experienced by driller. Adaptable to all types of Emsco, Union Tool and Oil Well Brake Bands.

H. C. SMITH MANUFACTURING CO., Inc.,
Los Nietos, California.

Branch Offices and Warehouses:
Bakersfield, Calif. Ventura, Calif.

Cable Address: "Smithco, Whittier"

Oil Well Supply Co., Exclusive Sales Distributors, Outside of California, for H. C. Smith coring equipment and demountable drilling bits.

H. C. SMITH *Quality* DRILLING TOOLS

WICO

SERVICE

There is a WICO factory Branch at Tulsa, Oklahoma, 121 West 8th Street. This branch is *yours*—use it.

You should use our Tulsa Branch because:

1. It will save you money.
2. It will insure your getting genuine WICO parts.
3. It will assure you that every machine repaired is as good as new, and
4. A factory representative will be only too anxious to call and help you with any of your field problems.

Every National store carries a complete stock of new WICOS and genuine WICO parts.

WICO ELECTRIC COMPANY

SPRINGFIELD, MASSACHUSETTS

WHEREVER OIL IS FOUND

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

(Continued from Page 54)

S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w ..Shut down 625 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w .....Drlg. 6,088 ft.

HASKELL COUNTY

Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e .....Shut down 1,200 ft.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e..Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e..Shut down 2,100 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 .....Rig.
Canady et al's No. 1 Kanard, NW SW Sec. 29-9-12 .....Drlg. 1,275 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 .....Rig on ground.
McCullough Oil Co.'s No. 1 Scott, NW NE Sec. 23-6-8 ....Drlg. 3,975 ft.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w .....Shut down 2,020 ft.

KINGFISHER COUNTY

Superior Oil Co.'s No. 1 Story, SE cor. Sec. 25-19-5w ....Fishing 6,285 ft.
Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w .....Shut down 6,015 ft.

KIOWA COUNTY

Hyde et al's No. 1 Jones, SE cor. Sec. 23-3-18w-50 .....Shut down 490 ft.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w..Drlg. 1,165 ft.

LEFORE COUNTY

Red Bank Oil Co.'s No. 1 fee, SE SW NW Sec. 23-9-24..Drlg. 5,400 ft.; 15,000,000 ft. gas; rig burned.

LATTIMER COUNTY

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e .....Shut down 1,450 ft.
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 .....Fishing 4,020 ft.

LINCOLN COUNTY

Morgan & Flynn's No. 1 Johnson, SW NE Sec. 1-16-5 ....Drlg. 2,340 ft.
Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 .....Drlg. 5,060 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w..Shut down 3,970 ft.

McINTOSH COUNTY

Jennings Bros.' No. 1 Crabtree, NW SW NE Sec. 31-10-14 .....Drlg. 985 ft.
Spring Valley Oil Co.'s No. 1 Carr, SE cor. NE NW Sec. 16-10-13e .....Shut down 2,508 ft.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 .....Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

MAJOR COUNTY

Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w..Rig.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 ....Shut down 1,011 ft.
Cooper-Badget's No. 1 Young, NW NE NE Sec. 7-12-20e ..Shut down 50 ft.

NOBLE COUNTY

Peerless et al's No. 1 Wentz, NW SW Sec. 22-22-1 .....Drlg. 2,108 ft.
Gypsy Oil Co.'s No. 1 Bailey, C NE NE Sec. 24-22-1e ....Abandoned 5,030-32 ft.; water.

OSAGE COUNTY

Lewis Prod. Co.'s No. 1, NW cor. Sec. 23-26-7 .....Drlg. 480 ft.

OKFUSKEE COUNTY

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 .....Shut down 2,795 ft.
Prairie's No. 1 Smith, SW NW Sec. 18-12-10 .....Drlg. 3,840 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 .....Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 ..Underreaming 6-in. csg. 3,468 ft.

OKLAHOMA COUNTY

Ryan & Martin's No. 1 Lawton, NE NW Sec. 3-11-2w ..Spudding.
Tom Slick Oil Co.'s No. 1 Martin, C NW NW Sec. 13-13-1w .....Drlg. 6,040 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w .....Cleaning out 4,750 ft.

PITTSBURG COUNTY

Mid-Western Oil Co.'s No. 1 Unknown, SE SW NE Sec. 11-7-18 .....Machine.
Galbreath's No. 1 Snyder, C W half SW Sec. 28-4-13 ....Abandoned 100 ft.
Empire O. & R. Co.'s No. 1 Williams, C NE SE Sec. 33-7-16e .....Pulling 10-in. csg. 3,100 ft.
Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12 .....Drlg. 3,100 ft.

PONTOTOC COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 McFarland, NW cor. Sec. 4-5-5 .....Drlg. 3,078 ft.
Independent and Shaffer's No. 1 Moses, NE SE SW Sec. 10-5-4 .....Wilcox 3,332-41 ft.; show water.

POTTAWATOMIE COUNTY

Payne Drlg. Co.'s No. 1 Bullock, SE NE Sec. 22-6-3 ....Rig on ground.
Lippa Drlg. Co.'s No. 1 Pittman, SW NW Sec. 3-8-4 ....Drlg. 4,085 ft.
Twin State's No. 1 Ray, NW SW Sec. 3-8-4 .....Drlg. 2,555 ft.
Prairie O. & G. Co.'s No. 1 Bodkin, SW cor. Sec. 26-8-4 ..Drlg. 3,827 ft.
Empire O. & R. Co.'s No. 1 McKown, SW NW Sec. 25-8-4 .....Wilcox sand 4,504-11 ft.; hole full water; abandoned.
Keister & Manning's No. 1 Tibbs, NE SW Sec. 9-8-4 ....Fishing 4,240 ft.
Amerada's No. 1 Vineyard, NW NE NE Sec. 15-7-3 ....Shut down 5,041 ft.; hole full water 5,093 ft.; pulled back to 4,830 ft.
Gypsy Oil Co.'s No. 1 Randolph, NW NE Sec. 23-6-4....Rigging up standard tools 3,914 ft.

ROGER MILLS COUNTY

Prairie O. & G. Co.'s No. 1 Mingo, SE NE Sec. 25-6-5 ..Drlg. 1,880 ft.
Bucy & Stone's No. 1 Williams, C SW Sec. 23-12-24w ....Rig.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w ....Shut down 1,300 ft.

SEMINOLE COUNTY

Prairie O. & G. Co.'s No. 1 Harjo, NE SW NE Sec. 25-6-7 .....Rig.
Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 25-5-5 ....Location.
Prairie & Slick's No. 1 Bettsey, NW SW Sec. 36-6-6 ....Drlg. 4,087 ft.
Harris' No. 1 Harjoche, SE NE SE Sec. 8-6-6 .....Wilcox 4,047-52 ft.; plugged back to 2,950 ft.; flowed 100 bbls.

SEQUOYAH COUNTY

Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-22 .....Shut down 1,260 ft.
Buffington and others' No. 1 Melcher, C SW NW Sec. 31-12-24 .....Shut down 3,000 ft.

WOODS COUNTY

Peerless O. & G. Co.'s No. 1 Unknown, C NW NE Sec. 23-28-16w .....Drlg. 890 ft.
S. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w .....Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w .....Drlg. 5,969 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW Sec. 33-27-16w .....Drlg. 5,555 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-23-17w .....Shut down 1,387 ft.
Prairie Oil & Gas and others' No. 1 Wilber, NE cor. NW Sec. 23-23-17w .....Drlg. 5,755 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w .....Drlg. 4,885 ft.
Burgoyne Bros.' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w .....Shut down 1,910 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Bookshire's No. 1 Guinn, NW cor. Sec. 8-3-10 .....Rig.

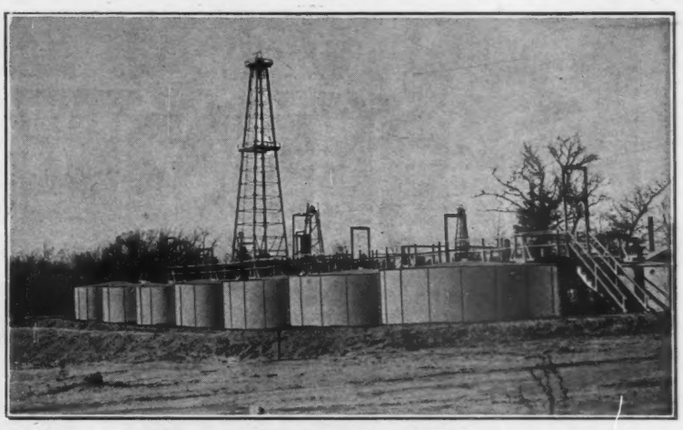
BRYAN COUNTY

Marshall's No. 2 fee, C SW SE NW Sec. 26-5s-7 .....6-in. csg. 265 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e .....Drlg. 1,888 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 .....Drlg. 1,375 ft.

(Continued on next Page)



Battery of 14 low-type, 500-Bbl. Maloneys on Geo. Fish Farm No. 1, of Carter Oil Co.

Buy Tanks that will Pay for Themselves!

Buy your tanks on the business principle of them eventually paying for themselves. When you buy Maloney Vapor-Pressure tanks you do this.

The material (Keystone Copper-Steel) used in our tanks is the best the market affords and is sufficiently heavy and sturdy to accomplish what we are claiming for them. Performance is what you are to consider.

We refer you to the paper No. 2834 by the United States Bureau of Mines, relative to performance. The idea is right and simple, both in theory and practice.

Save your oil and gas.

"Alone in Quality"

MALONEY TANK MFG. CO.

Tulsa, Okla., U.S.A.

Distributers at All Principal Petroleum Points

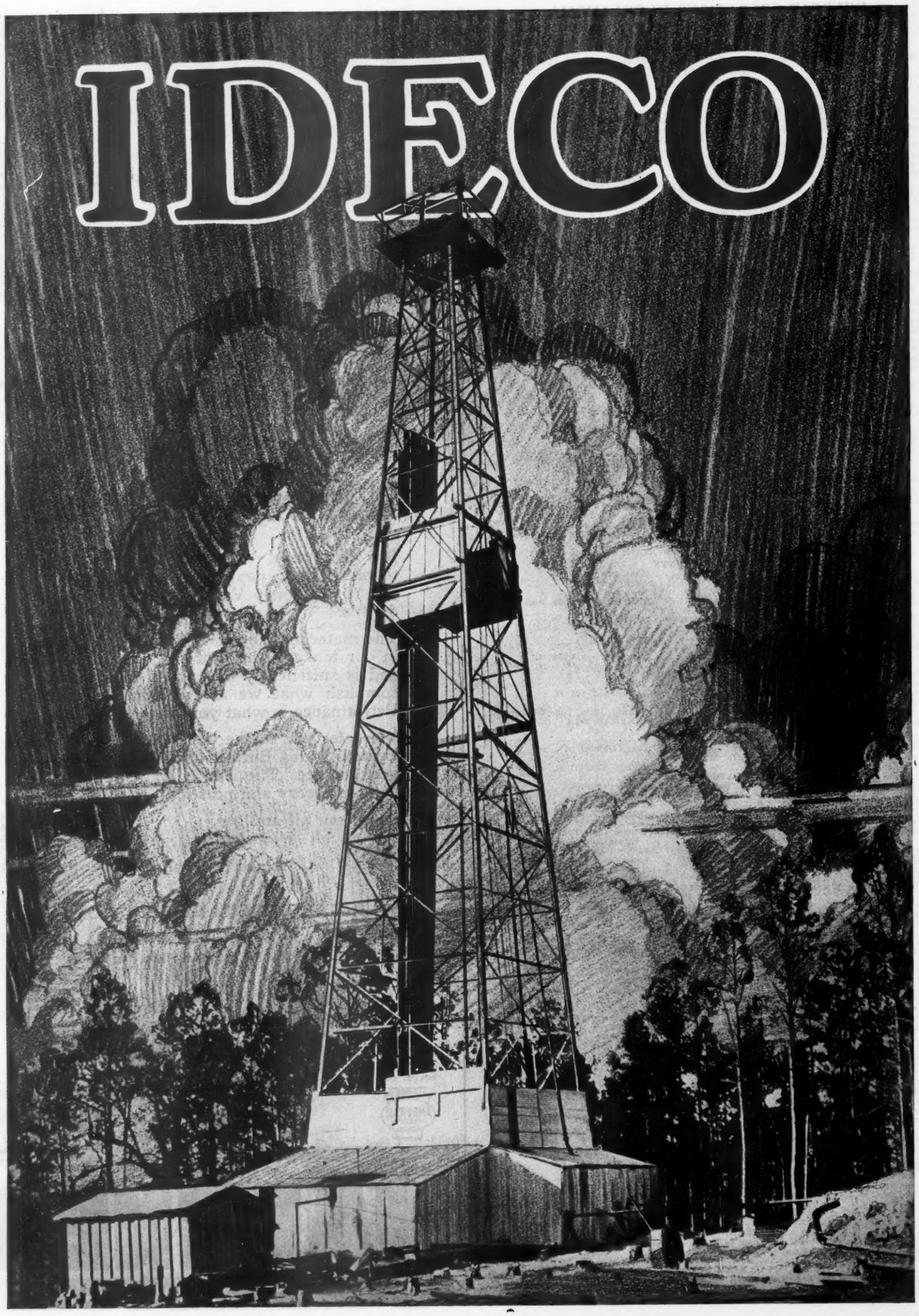
Maloney A.P.I. Bolted Steel Tanks conform to A.P.I. dimensional standards, and carry the official A. P. I. monogram.

MADE OF KEYSTONE AMERICAN COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE AMERICAN COPPER STEEL

MALONEY ALONE


IDECO

The reason for IDECO stability

Research, experiments, and years of usage in the oil fields of the world have combined to produce IDECO derricks of the highest possible working efficiency. Incorporating strength, rigidity, a minimum number of parts, a variety of sizes and weights for every type and class of drilling or pumping use, and performing all classes of work under the most severe conditions, IDECO Structural Steel Derricks are unequalled and have never been successfully imitated.

The Builders of IDECO derricks are steel men. They know steel, its possibilities and superiority. Years of actual experience in structural design are built into IDECO derricks.

THE INTERNATIONAL DERRICK & EQUIPMENT CO.

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Plants: Columbus, Delaware, Ohio; Houston, Beaumont, Texas; Torrance, California. *Sale Offices:* Columbus, Ohio, New York City, N. Y.; Detroit, Michigan; Tulsa, Oklahoma; Fort Worth, Houston, Texas; Shreveport, Louisiana; Wichita, Kansas; Denver, Colorado; Los Angeles, California; Maracaibo, Venezuela. *Warehouses and Yards:* Columbus, Ohio; Tulsa, Seminole, Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Oklahoma City, Oklahoma; El Dorado, Wichita Heights, Kansas; Bakersfield, Taft, Torrance, California; Houston, Big Spring, Odessa, Pyote, Pampa, Borger, Mexia, Luling, Texas; Shreveport, Lake Charles, Louisiana; El Dorado, Smackover, Arkansas.

Export Representation—74 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, California.

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ADAPTABLE
To Your Furnace Needs

UNUSUAL adaptability to the varied and particular furnace requirements of the refinery is one of the important reasons why Bigelow Suspended Walls and Arches are so widely used. These Bigelow-Liptak products impose no limitations that make it necessary to compromise the most efficient furnace design.

The Bigelow Arch can be given any desired contour and openings are readily provided wherever wanted. It can be installed and maintained from outside the furnace . . . an important characteristic where roof tubes are used.

The Bigelow Wall will preheat the air for combustion. It can be sloped as required and each tile is individually suspended. The supporting steel is unusually simple and can readily be made to clear tube banks, firing doors, etc.

Other important features of Bigelow-Liptak Products are long life and low maintenance cost. Write for descriptive bulletins.

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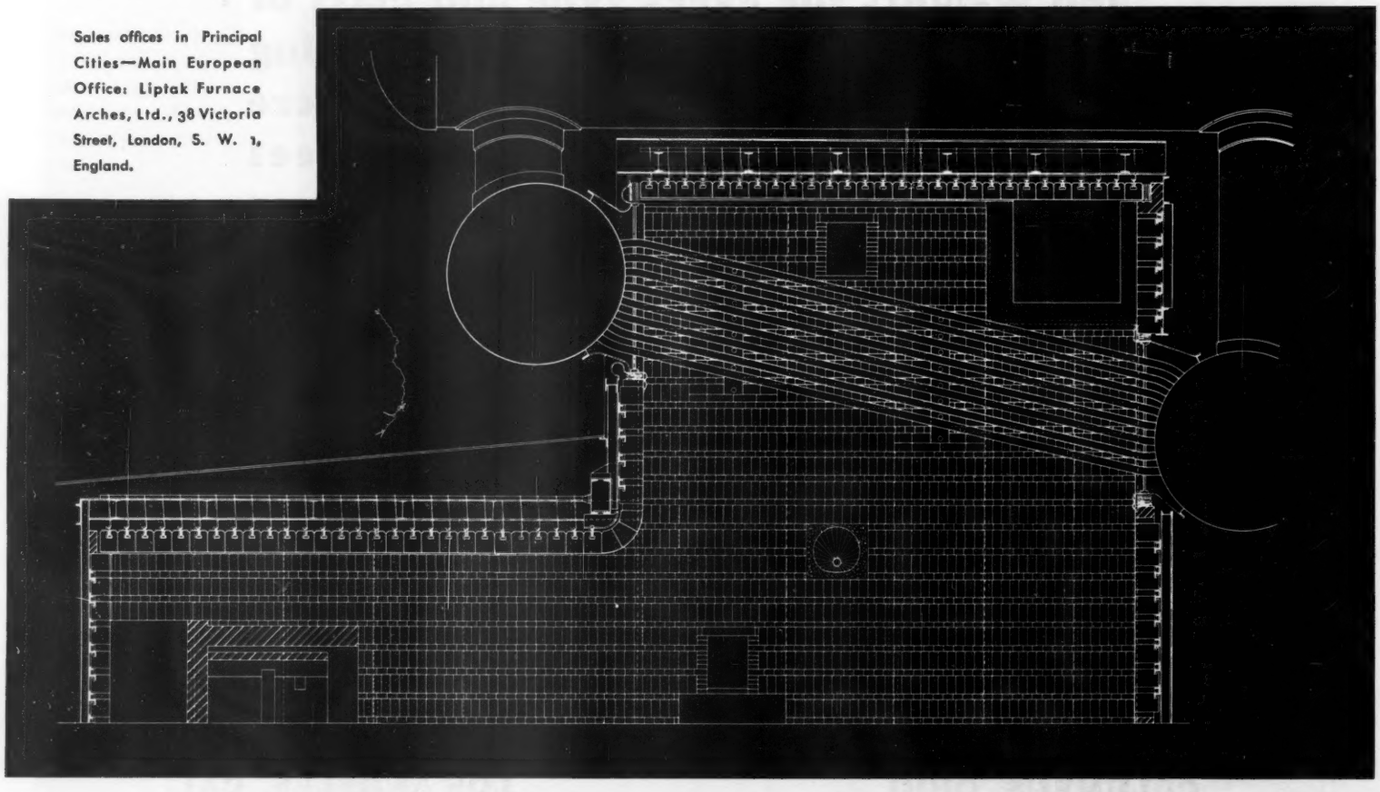
DETROIT, MICHIGAN

Sales offices in Principal Cities—Main European Office: Liptak Furnace Arches, Ltd., 38 Victoria Street, London, S. W. 1, England.



BIGELOW-LIPTAK
A SUSPENDED WALL AND ARCH FOR EVERY FURNACE

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19e ..... Shut down 1,346 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w .... Rig.

COTTON COUNTY

Wirt Franklin's No. 1 Bandy, NW cor. Sec. 4-4s-10w .... Drlg. 2,715 ft.

JEFFERSON COUNTY

Danciger et al's No. 1 Dilley, SE NW Sec. 11-5s-7w .... Rigging up to drill deeper; shut down.
Gypsy Oil Co.'s No. 1 Smith, C SW SE SE Sec. 2-7s-7w.. Abandoned 3,914 ft.

JOHNSTON COUNTY

Smith & Knisely's No. 1 Lane, E half Sec. 29-1s-7..... Shut down 2,254 ft.

McCURTAIN COUNTY

Utopia Pet. Co.'s No. 1 Unknown, SE NW Sec. 14-9s-25.. Location.
Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 1,490 ft.

STEPHENS COUNTY

Smythe et al's No. 1 Johnson, NE cor. Sec. 30-2-8w .... Shut down 25 ft.
Pace et al's No. 1 Voss, C SE NW SW Sec. 23-2s-7w .. Abandoned 2,005 ft.
Pace et al's No. 1 Horton, C SE SW SE Sec. 26-2s-7w .... Abandoned 2,795 ft.
Pace et al's No. 1 Butler, C NW NW SW Sec. 35-2s-7w.. Abandoned 2,909 ft.
Porter & Monahan's No. 1 Robberson, SE NW Sec. 23-3s-4w ..... Drlg. 3,440 ft.

TILLMAN COUNTY

Allen Bros.' No. 1 Howell, SW NE Sec. 13-1-17w .... Drlg. 610 ft.
Staley-Chenault's No. 1 Crane, NE SE Sec. 25-4s-14w .. Shut down 2,000 ft.
Nance et al's No. 1 Massie, NE NW Sec. 36-18-6w .... Location.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-16w ..... Shut down 2,535 ft.

OKLAHOMA PANHANDLE

Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e ..... Shut down 250 ft.

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

(Continued from Page 56)

Dixie & Amerada's No. 1 McCarty, SW cor. Sec. 22-25-17w ..... Rig.

ELK COUNTY

Empire and Arkansas Fuel's No. 1 Record, C SW SE SW Sec. 32-30-10 ..... Rig.

ELLIS COUNTY

Streeter & Stearns' No. 1 Leiker, SW NE Sec. 26-13-20w. Drlg. 1,200 ft.
Byrene et al's No. 1 Fisher, NW SE Sec. 4-11-20w .... Shut down 1,000 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w ..... Fishing 2,555 ft.

ELLSWORTH COUNTY

Tatlock et al's No. 1 Sackem, C SW SE Sec. 25-17-9w .. Shut down 675 ft.
The Texas Company's No. 1 Sherman, NE SW Sec. 16-17-6w ..... Drlg. 3,625 ft.

FORD COUNTY

McNabb et al's No. 1 Unknown, C SE Sec. 26-27-22w.... Rig.
Swain et al's No. 1 Kenthorne, C NW Sec. 21-25-24w .. Shut down 390 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w ..... Drlg. 4,232 ft.
Naylor et al's No. 1 St. John, NW SE SE Sec. 27-8-25w.. Rig.

GREENWOOD COUNTY

F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12 .. Shut down 50 ft.
T. K. Simmons' No. 1 Steele, SE NE Sec. 32-22-12 .... Abandoned 1,940 ft.

HARPER COUNTY

Boeler et al's No. 1 Bear, C NE Sec. 21-31-6w ..... Shut down 50 ft.
Tom Slick Oil Co.'s No. 1 Miller, SE cor. Sec. 13-34-8w ..... Drlg. 5,274 ft.
Tom Slick Oil Co.'s No. 1 Thompson, NW cor. Sec. 19-32-6w ..... Wilcox 4,975 ft.; drlg. 5,035 ft.; water.

HARVEY COUNTY

Superior's No. 1 Regier, SE NW Sec. 11-22-3w ..... Rig.
Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-24-1w ..... Drlg. 3,220 ft.
Liggett et al's No. 1 Regier, C SE NW SE Sec. 2-23-3w.. Drlg. 2,812 ft.
E. W. Marland, Inc.'s No. 1 Neiman, C NE SE NE Sec. 8-24-2 ..... Drlg. 1,540 ft.
Deering-Marshall's No. 1 Dick, Sec. 4-25-2w ..... Shut down 3,998-4,010 ft.; hole full water; abandoned.
McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w ..... Drlg. 2,572 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Shut down 3,295 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w.. Shut down 3,444 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 22-23-1w .... Shut down 3,220 ft.

HODGEMAN COUNTY

Phillips Pet.'s No. 1 Hausman, NW NE Sec. 30-22-22w.. Drlg. 4,150 ft.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

KINGMAN COUNTY

D. P. Fleeger's No. 1 Ashcraft, SE SW NE Sec. 16-28-7w ..... Drlg. 3,175 ft.
White Eagle's No. 1 Lorenz, C NE SW SE Sec. 25-27-5w. Drlg. 3,320 ft.

LANE COUNTY

Robinson's No. 1 Dickerson, Sec. 11-18-27w ..... 8-in. cag. 2,625 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

LYON COUNTY

Harry Mortlock's No. 1 Diebolt, NW NE Sec. 24-20-1 ... Fishing 1,000 ft.

MARION COUNTY

Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5 .... Rig.
White Eagle's No. 1 Ucker, NE NW Sec. 24-17-2 ..... Drlg. 2,000 ft.
American O. & R. Co.'s No. 1 Urie, NW SW NW Sec. 10-17-3 ..... Drlg. 3,015 ft.

McPHERSON COUNTY

Dixie Oil Co.'s No. 1 Johnson, SW cor. Sec. 20-17-3w .. Rig.
Harry Skelly et al's No. 1 Neufeldt, SE NE Sec. 19-21-3w. Location.
McCulloch Oil Co.'s No. 1 Cornelius, SW cor. Sec. 7-21-4.. Drlg. 2,535 ft.
Kansas Oil Co.'s No. 1 Otto, SW NW Sec. 21-20-1w .... Drlg. 1,600 ft.
Reynolds et al's No. 1 Koohn, NE SE NE Sec. 15-20-2w .. Drlg. 1,470 ft.
McPherson O. & G. Co.'s No. 1 Fisk, SW NE NE Sec. 15-21-2w ..... Cleaning out 2,640 ft.
McPherson O. & G. Co.'s No. 1 Sorenson, C SE Sec. 23-18-2w ..... Drlg. 2,775 ft.
Milmac's No. 1 Decker, NW cor. Sec. 11-20-3w ..... Fishing 1,500 ft.
Lario et al's No. 1 Diener, SE SW Sec. 10-20-1w ..... Drlg. 3,455 ft.
Perry et al's No. 1 Wade, C SE Sec. 20-19-4w ..... Drlg. 3,535 ft.
Slick, Pryor & Lockhart's No. 1 Gratton, C NE NW NW Sec. 34-20-3w ..... Chat 3,055-3,108 ft.; pump 256 bbls. 2 per cent water.
Heimerich & Payne's No. 1 Klassen, SE NE NE Sec. 14-21-1w ..... Hole full water 3,560-62 ft.; shut down.
Transcontinental Oil Co.'s No. 1 Algers, NE SW Sec. 1-19-5w ..... Drlg. 3,555 ft.

MORRIS COUNTY

Arrow O. & G. Co.'s No. 1 Kinkle, C NW NE Sec. 8-16-7.. Shut down 50 ft.

NORTON COUNTY

White & Chaney's No. 1 Love, NE cor. Sec. 11-4-24w .... Rig on ground.
Richards et al's No. 1 Colby, C SW Sec. 17-4-21w ..... Rig on ground.

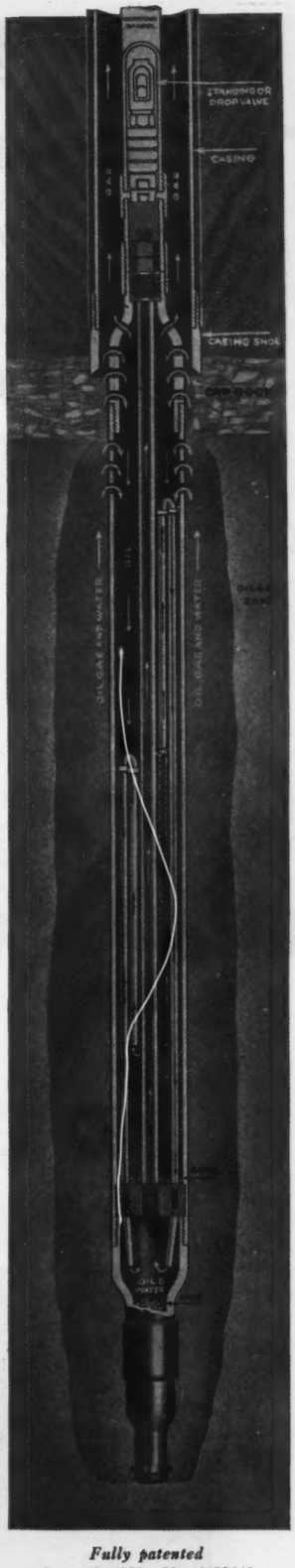
NESS COUNTY

Continental Oil Co.'s No. 1 Moses, NE SE Sec. 7-18-25w ..... Drlg. 4,428-31 ft.; swabbed 220 bbls.

OSBORNE COUNTY

Phillips Pet. Co.'s No. 1 Grieve, NW SE NE Sec. 6-7-12w.. Drlg. 3,490 ft.
Mid-Kansas' No. 1 Boyce, SE cor. NW Sec. 18-6-13w .... Underreaming 3,750 ft.

(Continued on next Page)



Fully patented
June 12, 1928—No. 1673663
Oct. 22, 1929—No. 173249

The

Chancellor Separator

A new MILLER *product*

A POSITIVE GAS ANCHOR
CUT OIL PREVENTER
A DOUBLE SANDTRAP

THE Chancellor Separator is designed to separate the Gas, Sand and Water from the oil at the bottom of the well. Used below the working barrel at the bottom of the hole, it prevents gas troubles, because it is a positive gas anchor. Completely stops the pumping of gas.

Prevents Cut Oil, by keeping the gas out of the tubing, and pumping the water separate from the oil by use of the siphon tubes. First a head of water then a head of oil is pumped through the tubing, keeping worn barrel, cut cups, and valves from emulsifying oil and water. This eliminates the treating of oil and increases the casinghead gas.

There are no working parts to wear out. Closed on top, cavings cannot clog the Separator, absolutely guaranteed in every way *—it will pay for itself before you are invoiced.* This is the result of years of experimenting. Now being used by most of the larger Oil Companies.

Manufactured in lengths of 6 feet to 20 feet, with an outside diameter of either 4" or 4½". Special sizes are made to order. We welcome your inquiries. Send for fully descriptive folder giving full details of this remarkable new member of the Miller family.

MILLER

Combination Bailer & Pump Co.

General Offices and Plant
SAPULPA, OKLAHOMA

SPEAKING OF

AN airplane engine runs continuously for 17½ days . . . and a new epoch is born. The crowds go mad. Newspapers headline the achievement. Sending stations broadcast it. News reels show the tired flyers clambering from the plane. Heroes, truly. Men who deserve every ounce of praise.

An automobile engine runs without a stop for over 18 days . . . and all previous records are shattered. Association officials congratulate the drivers. A blanket of advertisements covers the country—spreads the news.

Meanwhile, in the oil and gas fields, hundreds of Cooper and Bessemer engines go on steadily with their work—driving compressors, pumping oil, generating power. At night their owners and operators go home; eat; rest; sleep. When

COOPER ENGINES

ENDURANCE

they come to work the next morning, the engines are still running. Each day, each night, each week, each month this happens—and still the engines run.

Tell these owners and operators that a Cooper or Bessemer engine ran steadily for six months, two days and four hours . . . and they don't even raise an eyebrow. Tell them that 30 Coopers or Bessemers in one plant ran under full load for a solid month without a shutdown . . . and they yawn. Tell them that seven engines installed fourteen years ago are running on the old main bearings—that another engine installed twenty years ago still has its first set of cylinders and pistons . . . and they say, "Well, that's what a Cooper or a Bessemer *ought* to do."

THE COOPER-BESSEMER CORPORATION

Formerly The C. & G. Cooper Company and The Bessemer Gas Engine Company

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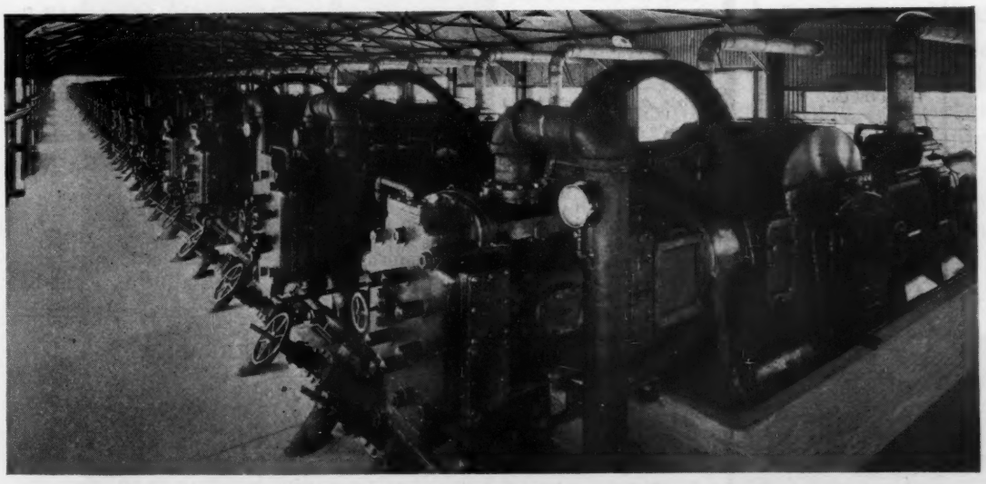
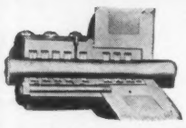
Branches in all principal oil and gas fields



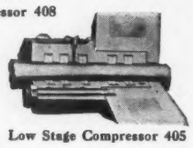
BESSEMER ENGINES

COOK'S GRAPHITIC IRON ROD PACKINGS

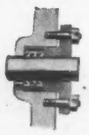


High Stage Compressor 408

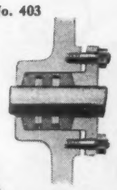
A PACKING FOR EVERY OIL FIELD SERVICE



Low Stage Compressor 405



Partition Plate Wiper No. 403



Power End Packing No. 302

Quality Commands the Market

A basic idea over 40 years ago—COOK'S anti-friction Rod Packing is today an economic force pitted against inefficiency.

When the leading oil and gas companies in all fields choose "COOK'S GRAPHITIC IRON" Packings for the power and compressor ends of their air lift and gasoline extracting units—

And when ordering new equipment cover their use by specification—

And change over existing equipment as time allows—

Doesn't it prove your company, too, will effect savings in packing costs, repairs and efficiency by the use of these Advanced Packings?

May we send you the Facts?

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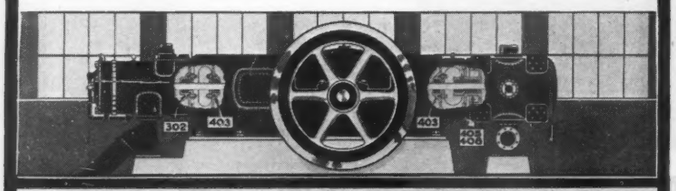
A Few Users

Columbia Gas & Electric Company
General Petroleum Co.
The Gulf Companies
Houston Pipe Line Co.
Humble Oil & Refining Co.
Indian Territory Illuminating Oil Co.
Midwest Refining Co.
Phillips Petroleum Co.
Industrial Fuel Supply Co.
Sinclair Oil & Gas Co.
The Shell Companies
Standard Gasoline Co.
The Texas Co.
Union Oil Co.
United Fuel Gas Co.
McMan Oil & Gas Co.
Signal Gasoline Co.
Barnsdall Oil Co.
Chestnut & Smith Corp.
Skelly Oil Co.



"40 YEARS SERVICE BUILT IN"

PAWNEE COUNTY

Prairie O. & G. Co.'s No. 1 Black, SW NE NE Sec. 11-20-18w ..... Spudding.
F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w.. Shut down 1,560 ft.

PRATT COUNTY

O'Haver & Jones' No. 1 Garacke, C NE SW Sec. 7-26-14w ..... Drlg. 1,410 ft.
O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w.. Fishing 4,550 ft.
Wilson O. & G. Co.'s No. 1 Unknown, SW NW Sec. 7-26-15w ..... Drlg. 950 ft.

RENO COUNTY

Empire O. & R. Co.'s No. 1 Blitz, NE NW Sec. 36-25-4w ..... Drlg. 3,130 ft.
Wilson et al's No. 1 McPhaeters, C S half NW Sec. 22-26-8w ..... Drlg. 2,250 ft.
Witt's No. 1 Olsen, C SE NW Sec. 14-22-6w ..... Drlg. 1,510 ft.
Skelly Oil Co.'s No. 1 Birkett, NE SW Sec. 30-24-7w .... Drlg. 3,905 ft.
Milmac Oil Co.'s No. 1 Stucky, SW cor. NW Sec. 17-26-5w ..... Shut down 3,998-4,018 ft.; hole full water.

RICE COUNTY

Boucher's No. 1 Bieg, Sec. 16-21-10w ..... Drlg. 200 ft.
C. P. McBride's No. 1 Green, C NW Sec. 33-19-6w ..... Rig on ground.
Miller & Detrick's No. 1 Shumway, C SW Sec. 2-20-9w .. Shut down 3,100 ft.
Burgher's No. 1 Fair, C SE NE NE Sec. 14-21-10w .... Drlg. 1,060 ft.
Derby Oil Co.'s No. 1 Johnson, C NW NE SE Sec. 24-20-6w ..... Skidding rig 2,300 ft.
Milmac's No. 1 Cain, C SE Sec. 29-19-7w ..... Drlg. 3,045 ft.
Curtis et al's No. 1 Green, C NW Sec. 33-19-6w ..... Location.
Danciger et al's No. 1 Bell, C SW Sec. 16-19-8w ..... Shut down 50 ft.
McCullough et al's No. 1 Williams, C NE Sec. 35-20-8w.. Rig.

RILEY COUNTY

Arkansas Fuel Oil Co.'s No. 1 Martin, SE NE SW Sec. 24-8-4 ..... Drlg. 1,650 ft.
Grey et al's No. 1 Smith, NE SE Sec. 30-6-6 ..... Shut down 1,970 ft.
Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e.. Shut down 2,246 ft.

RUSSELL COUNTY

Cress & Hacke's No. 1 Unknown, SE cor. Sec. 6-13-12w.. Rig on ground.
Midwest Exploration's No. 1 Benson, SW cor. Sec. 4-14-15w ..... Underreaming 2,635 ft.
Prairie Oil & Gas Co.'s No. 1 Brungardt, C NW SE NW Sec. 31-12-15w ..... Drlg. 3,041 ft.

ROOKS COUNTY

Kruger et al's No. 1 Stels, NW SE SW Sec. 12-9-16w .... Abandoned 50 ft.
Central Commercial's No. 1 Baxa, Sec. 22-9-17w ..... Drlg. 2,520 ft.

RUSH COUNTY

Milmac's No. 1 Mohr, C NW Sec. 11-18-16w ..... Shut down 50 ft.
Danciger Oil Ref. Co.'s No. 1 Pivonka, NE cor. SW NE Sec. 17-19-17w ..... Shut down 4,044 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Thorstenburg, NW NE Sec. 10-16-3w ..... Drlg. 3,504 ft.
Austin et al's No. 1 Olsen, NW SW SE Sec. 10-15-4w .... Drlg. 3,070 ft.
Templeman's No. 1 Lanbengager, C SW Sec. 20-15-5w .. Shut down 2,975 ft.
Twin Mounds' No. 1 Weis, NW NE NW Sec. 20-13-4w.. Shut down 700 ft.

SEDGWICK COUNTY

Moore's No. 1 Stewart, C NE SE NW Sec. 18-28-1w .... Drlg. 2,078 ft.
Tavender et al's No. 1 McLean, SE SW SE Sec. 23-26-1w ..... Rig.
Wentz Oil Corp.'s No. 1 Allison, NE NW Sec. 24-26-2 .... Drlg. 3,070 ft.
Wilson et al's No. 1 Ottaway, SW NW Sec. 16-28-2w .... Rig.
Mariand and Amerada's No. 1 Sensorth, NW cor. Sec. 25-28-4w ..... Drlg. 3,719 ft.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e ..... Shut down 3,358 ft.
Kellar & Lewis' No. 1 Buckles, NW cor. SE Sec. 3-28-1w. Drlg. 420 ft.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w ..... Wilcox 3,910 ft.; drlg. 3,923 ft.; hole full water; abandoned.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e.. Shut down 1,385 ft.

SHAWNEE COUNTY

Jenkins & Scott's No. 1 Sherman, NW NE Sec. 28-10-15 ..... Rig.
Jenkins & Scott's No. 1 Haden, NE SE Sec. 8-12-14 .... Shut down 750 ft.

SHERIDAN COUNTY

Mandalin O. & G. Co.'s No. 1 Unknown, C SE SW SW Sec. 27-7-26w ..... Spudded; shut down.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STAFFORD COUNTY

Gibson's No. 1 Mueller, C SW Sec. 11-23-14w ..... Drlg. 750 ft.
Phillips Petroleum's No. 1 Houghton, SW cor. Sec. 20-21-12w ..... Shut down 50 ft.

STEVENS COUNTY

McKenna's No. 1 Unknown, C NW NW Sec. 29-33-36w.. Drlg. 1,350 ft.
Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w.. Drlg. 2,250 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Shut down 1,600 ft.

SMITH COUNTY

Phillips Pet.'s No. 1 Clydesdale, SE NW Sec. 23-5-14w.. Drlg. 3,170 ft.

SUMNER COUNTY

Hatfield's No. 1 Dauber, NE cor. Sec. 18-30-1w ..... Spudding.
Kingwood Oil Co.'s No. 1 Stayton, C NE Sec. 18-31-2w.. Drlg. 1,750 ft.
Slick et al's No. 1 Peasel, NW cor. Sec. 33-31-1w ..... Drlg. 2,675-2,710 ft.; hole full water.
Lario O. & G. Co.'s No. 1 Osborne, NE SE Sec. 21-30-1w ..... Underreaming 8-in. csg. 2,670 ft.
E. K. Carey & Larado Oil Co.'s No. 1 Welsch, SW SE Sec. 9-34-1e ..... Drlg. 2,970 ft.
Shell Pet. Corp.'s No. 1 Armstrong, NE cor. Sec. 12-33-1e. Drlg. 3,335 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Dixie & Amerada's No. 1 Reitmayer, C NE NE Sec. 19-14-21w ..... Shut down 325 ft.
Prairie Oil & Gas Co.'s No. 1 Kutina, C NE SW NE Sec. 29-15-21w ..... Fishing 3,325 ft.
Producers & Refiners Corp.'s No. 1 Kingsley, C SE NW NW Sec. 24-14-21w ..... Drlg. 1,410 ft.
Phillips Pet. Co.'s No. 1 Spitz, SE cor. Sec. 24-12-25w .. Drlg. 3,365 ft.
Mid-Kansas' No. 1 Ridgeway, NE SW Sec. 28-12-21w .... Drlg. 3,968-70 ft.; water.
Day et al's No. 1 Gugler, SW NE NE Sec. 36-12-21w .... Shut down 50 ft.
Day et al's No. 1 Unknown, NE NW SW Sec. 2-11-21w .. Drlg. 3,175 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3.. Drlg. 2,806 ft.

WOODSON COUNTY

Shaffer & Howell's No. 1 Levering, CSL SE Sec. 12-25-14.. Shut down 450 ft.
F. Young's No. 1 Headens, SE NE Sec. 11-2s-14 ..... Drlg. 800 ft.

WILDCAT OPERATIONS IN NEBRASKA

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w ..... Rig.

CHASE COUNTY

Chase Pet. Co.'s No. 1 Ingold, C NE Sec. 24-6n-38w .... Shut down 4,200 ft.; will run 5-in. csg.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w ..... Shut down 1,750 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w.. Drlg. 3,250 ft.

RICHARDSON COUNTY

Norton et al's No. 1 Hauser, NE cor. Sec. 26-1-14 ..... Location.

WEBSTER COUNTY

Mid-Kansas Exploration Co.'s No. 1 Platt, C SE one-half Sec. 3-1n-11w ..... Shut down 555 ft.

DONOVAN BOILERS

are Consistently Good

Chosen for their Design and Construction WHEN QUALITY IS CONSIDERED

A. S. M. E. Code Plus throughout. This means first, a minimum factor of safety of five.

Materials must be of the best. Every piece must have stood satisfactory physical tests and be of proper chemical analysis.

Design must be entirely safe and construction carefully checked. Even small details are subject to rigid inspection.

Workmanship must be of high grade. This, too, is subject to inspection.

Close inspection goes on throughout the course of construction. Anything defective is rejected at once.

Upon completion, the boiler is subjected to a hydrostatic test of 150% of its working pressure. This is done in the presence of a competent inspector who is in the employ of a state or an insurance company, and in no way connected with the manufacturer. Unless the boiler is perfectly tight, correctly designed and built, it cannot be stamped with the code symbol.

All this is done in addition to the care we exercise ourselves to see that DONOVANS are always just right.

Quality BOILERS Since 1890

DONOVAN BOILER WORKS, INC.

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FRICK - REID SUPPLY CORPORATION

Montana Distributors

GREAT NORTHERN TOOL & SUPPLY CO.

MIDLAND IRON WORKS

Bury the MAINTENANCE

Send for your copy of "The Protection of Oil and Gas Lines." It contains information pertinent to any pipe line projects you are contemplating.

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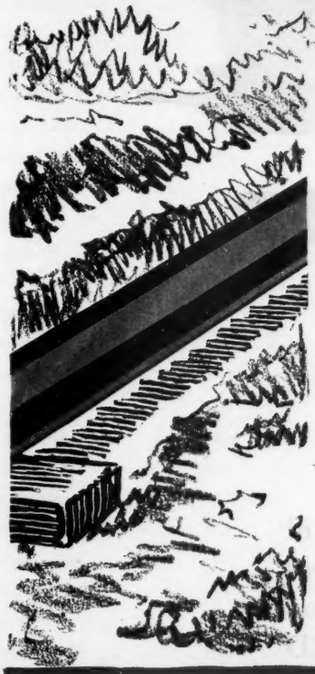
WITH the PIPE.



The periodical reconditioning of pipe lines is an expense which can be eliminated when the pipe is laid.

Eventually all pipe lines not properly protected may be expected to fail from corrosion and nothing else.

Bitumastic Enamel prevents corrosion. Applied when the pipe is laid, it encloses the metal in a thick, tough, impervious armor which excludes all corroding influences. It maintains the original strength of the pipe for an indefinite number of years, extending its useful life and avoiding interruptions of service.

So effectively does ***Bitumastic Enamel*** eliminate nearly all maintenance on lines to which it is applied that it virtually becomes a maintenance force, buried underground and working continually without wages.

ARKANSAS NATURAL GAS LINE

This 137 mile 20-inch gas line just completed between the Monroe (La.) fields and Shreveport is *Bitumastic* protected throughout.

Illustration shows application of *Bitumastic Enamel* on 60 ft. lengths by use of our patented Turning Rigs.

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MARTIN-LOOMIS AUTOMATIC RECORDING WEIGHT INDICATOR

here's news for Oklahoma operators

In keeping with the Martin-Loomis policy of rendering the best possible service to customers we take pleasure in announcing that in addition to the regular service rendered by the REED ROLLER BIT COMPANY they are establishing an

Exclusive Martin-Loomis Service Department
at 1129 Southeast 29th Street
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E. A. (Fat) Miller is in personal charge of this service department. "Fat" has just completed an intensive training course at the Martin-Loomis factory in California. You will find him capable and anxious to serve you.

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WEIGHT, RECORDING, MEASUREMENT AND CONTROL

AVERAGE GASOLINE TANK WAGON PRICES ONLY SLIGHTLY CHANGED

Gasoline tank wagon prices in The Oil and Gas Journal's 50 cities show a slight decline for November 1 compared to those on October 1. Over the past four months the average has varied only slightly and there has been no general trend. It is almost certain that the average price for the last six months' period in 1929 will be higher than the first six months

(Continued on Page 116)

TANK WAGON PRICES EXCLUSIVE OF TAX IN 50 REPRESENTATIVE CITIES

	Oct. 1	October price changes	Nov. 1	1928 High	1928 Low	1927 High	1927 Low	Tax 1929 Oct. 1
Birmingham, Ala.	15.0	....	15.0	18.0	14.0	18.0	14.0	4.0
Phoenix, Ariz.	14.0	....	14.0	18.0	14.0	19.0	16.0	4.0
Little Rock, Ark.	14.0	....	14.0	16.0	11.0	15.0	11.0	5.0
San Francisco, Calif.	17.0	....	17.0	14.0	14.0	14.0	9.0	3.0
Denver, Colo.	14.0	....	14.0	16.0	13.0	18.0	13.0	4.0
Hartford, Conn.	16.0	....	16.0	18.0	16.0	22.0	18.0	2.0
Dover, Del.	16.0	10 15.0	15.0	18.0	16.0	19.0	16.0	3.0
Jacksonville, Fla.	16.0	....	16.0	18.0	13.0	16.0	10.0	6.0
Atlanta, Ga.	16.0	....	16.0	18.0	13.0	18.0	10.0	6.0
Boise, Idaho	20.5	....	19.5	20.5	19.5	22.5	19.5	4.0
Peoria, Ill.	16.2	....	16.2	15.2	9.0	18.2	9.0	3.0
Chicago, Ill.	16.0	....	16.0	15.0	14.0	17.0	14.0	3.0
Indianapolis, Ind.	16.2	....	16.2	15.2	10.2	18.2	10.2	4.0
Des Moines, Iowa	16.5	....	16.5	15.5	11.9	16.0	9.9	3.0
Wichita, Kans.	14.8	....	14.8	13.8	10.8	15.8	10.8	3.0
Louisville, Ky.	16.0	....	16.0	16.0	13.0	17.0	13.0	5.0
New Orleans, La.	10.0	....	10.0	14.5	10.5	14.5	11.5	*5.6
Augusta, Me.	16.0	....	16.0	18.0	17.0	22.0	17.0	4.0
Baltimore, Md.	16.0	10 15.0	15.0	16.0	15.0	19.0	16.0	4.0
Springfield, Mass.	16.0	....	16.0	18.0	16.0	22.0	12.0	2.0
Detroit, Mich.	16.8	....	16.8	15.8	11.8	18.8	11.8	3.0
Duluth, Minn.	17.5	....	17.5	16.5	12.5	19.5	12.5	3.0
Natchez, Miss.	15.5	....	15.5	16.5	12.5	15.5	12.5	5.0
Kansas City, Mo.	15.9	....	15.9	14.9	10.9	17.9	10.9	*3.0
Helena, Mont.	20.5	....	20.5	20.5	19.5	22.0	19.5	5.0
Omaha, Nebr.	16.25	....	16.25	15.25	13.25	15.25	12.25	4.0
Reno, Nev.	20.0	....	20.0	18.0	18.0	18.0	15.0	4.0
Newark, N. J.	14.0	....	14.0	16.0	15.0	19.0	16.0	2.0
Albuquerque, N. Mex.	16.0	....	16.0	17.0	14.0	20.0	16.0	5.0
New York, N. Y.	14.0	....	14.0	18.0	17.0	22.0	17.0	2.0
Charlotte, N. C.	16.0	....	16.0	17.0	15.0	18.0	16.0	5.0
Fargo, N. Dak.	18.9	....	18.9	17.0	12.0	20.0	12.0	3.0
Cleveland, Ohio	15.0	....	15.0	16.0	14.0	19.0	14.0	4.0
Tulsa, Okla.	11.0	....	11.0	14.0	10.0	15.0	10.0	4.0
Portland, Ore.	17.5	....	17.5	14.5	14.5	14.5	11.0	3.0
Philadelphia, Pa.	16.0	....	16.0	18.0	15.0	19.0	12.0	†4.0
Providence, R. I.	16.0	....	16.0	19.0	17.0	22.0	17.0	2.0
Charleston, S. C.	16.0	10 15.0	15.0	17.0	15.0	19.0	15.0	6.0
Huron, S. Dak.	17.3	....	17.3	16.3	14.5	19.5	11.5	4.0
Memphis, Tenn.	15.0	....	15.0	16.0	12.0	15.0	10.0	5.0
Dallas, Tex.	13.0	....	13.0	14.0	9.0	13.0	10.0	4.0
Salt Lake City, Utah	18.5	17 17.5	17.5	18.5	16.5	20.5	16.5	3.5
Burlington, Vt.	15.0	....	15.0	18.0	17.0	22.0	17.0	4.0
Norfolk, Va.	16.0	10 15.0	15.0	16.0	14.0	18.0	16.0	5.0
Washington, D. C.	16.0	10 15.0	15.0	16.0	15.0	19.0	16.0	2.0
Charleston, W. Va.	16.0	10 15.0	15.0	17.0	15.0	18.0	16.0	4.0
Milwaukee, Wis.	16.1	....	16.1	15.1	13.1	18.1	13.1	2.0
Casper, Wyo.	17.0	19 16.0	16.0	16.0	14.0	18.0	14.0	4.0
Seattle, Wash.	17.5	....	17.5	14.5	14.5	14.5	11.0	3.0
Minneapolis, Minn.	17.2	....	17.2	16.2	11.0	15.2	11.1	2.0
Average price	16.00	....	15.82	16.54	13.54	18.15	13.55	3.71

*State tax 2 cents, remainder city tax. †Paid by dealer.

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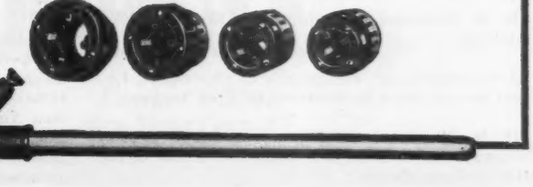

MEN KNOWN IN OILDOM

A. C. Howard

A. C. Howard holds the following titles in the United Gas Company, with headquarters in Houston, Tex.: Vice president and director of the United Gas Engineering Corporation; vice president and general manager of the Dixie Gas & Fuel Company; and consulting engineer of the United Gas Company. He also is connected with the following companies: Director of the El Paso Natural Gas Corporation; vice president and director of the Eastern States Gas & Power Company; president and director of the Sumter Gas & Power Company, Sumter, S. C.; treasurer and director of the Anderson Gas & Utilities Company, and director of the Greenwood Gas & Fuel Company.

Mr. Howard was born in Annapolis, Md., March 21, 1880. He was educated in St. John's College and the United States Naval Academy, being duly commissioned a United States naval officer from the latter institution. Of note, his father was Admiral "Tommy" Howard of naval fame. The younger Mr. Howard saw service on the U. S. S. Newark during the Spanish-American War, but resigned from the navy in 1901 and entered the service of the United Gas Improvements Company in Philadelphia, Pa., in which company he rose to assistant superintendent. From 1911-27 he served as gas engineer for the United Gas & Engineering Corporation and as first vice president of the Southern Gas & Electric Corporation.

In 1926 he became a director of the Oklahoma Natural Gas Corporation; prepared natural gas reports for the Electric Bond & Share Company on properties in New Orleans, La., Memphis, Tenn., and Jackson, Miss.; appraised properties of the Southwest Gas Company. San Antonio, Tex., and patented the Howard charger, a gas appliance.

Mr. Howard has had operating experience in some 15 states, and has appraised properties for rate making, purchase or bond purposes in 20 states and the province of Ontario, Canada.

PERSONAL PARAGRAPHS

C. R. Gilmore, of Tulsa, recently visited in Owensboro, Ky.

* * *

R. W. McMahan has returned to Kentucky from Oklahoma.

* * *

J. W. Adkins, Jr., oil operator at Shreveport, La., spent several days in Houston, Tex., on business.

* * *

H. W. Wood, of the Missouri Portland Cement Corporation, St. Louis, Mo., is making a tour of the Mid-Continent fields.

H. B. Cameron, Urichville, Ohio, contractor and producer in the northeastern Ohio fields, was a visitor to Owensboro, Ky.

* * *

Harry Adams, well known in the Rocky Mountain states as drilling contractor, is ill at the Mayo clinic in Rochester, Minn.

* * *

Charles S. Hill, who is drilling a test in the La Barge Field, recently suffered a sprained ankle while in Salt Lake City, Utah.

* * *

George W. Dryer, representing the Gardner-Denver Company, of Quincy, Ill., and Denver, Colo., was a recent visitor to Casper, Wyo.

* * *

C. P. Parsons, of the Halliburton Oil Well Cementing Company of Duncan, Okla., is on a business trip to the Canadian oil fields.

* * *

H. T. Thorson, field superintendent for the Illinois Pipe Line Company, at Osage, Wyo., was called to North Dakota by the death of a brother.

* * *

Sam H. Clopton, Houston, Tex., representative of the Howard-Smith Company, has recovered from a lengthy illness and now is back at his work.

* * *

Dr. Stanislaw Zuber has returned to Valona, Albania, in which country he is conducting oil investigations on behalf of the Italian State Railways.

* * *

Alfred A. Foote, chief engineer of the Rycade Oil Corporation. Houston, Tex., spent several days in Baton Rouge and other points in southeastern Louisiana.

* * *

George H. McIntyre, Fort Worth, division superintendent of the Continental Oil Company for Texas and New Mexico, spent several days in Houston, Tex., on business.

* * *

T. P. Lee, Houston, Tex., oil operator, has been chosen to head a delegation to attend a conference in Washington in the interest of a southern transcontinental air mail route.

* * *

E. B. Swanson, of the Washington offices of the United States Bureau of Mines, was gathering data for a report for the Department of Commerce in Wyoming during the last month.

* * *

W. A. Morris, one time superintendent of the Standard Oil Company refinery at Laramie, Wyo., and until recently in South America with the Standard, will visit friends in Wyoming soon.

* * *

J. Roy Walling, who has been field superintendent of Calmont Oils, Ltd., for some months, has resigned to become field manager for Boller, Sherman & Boller, drilling contractors, in the Turner Valley.

* * *

W. J. Hinchey, vice president in charge of Kentucky operations for the Missouri-Kansas Pipe Line Company, has moved from Kansas City, Mo., to Owensboro, Ky., where he and his wife will make their home.

* * *

J. H. Shepherd, Houston, Tex., formerly a scout for the Gulf Production Company, who was injured in an automobile accident last June, recovered and has just returned from the West where he has been recuperating.

* * *

W. E. Brock, of Chattanooga, Tenn., chairman of the board of the Lucey Manufacturing Corporation, has been appointed to the United States Senate to fill the vacancy caused by the recent death of Senator L. D. Tyson.

* * *

R. D. Wallace, of the Prairie Oil & Gas Company, has returned to his Casper, Wyo., home from California. The trip was made by motor from Lincoln, Neb., where Mr. and Mrs. Wallace visited with their son, Dwight, a student of Nebraska school of law.

* * *

Robert G. Carr, of Northrup & Carr, independent oil operators and field representatives in West Texas for Kloh, Rumsey and Abrams, and Herbert O'Bannon, cashier of the San Angelo National Bank, San Angelo, Tex., are making a trip to St. Louis, Mo., on business for the oil division of the San Angelo Board of City Development, of which they are members, Mr. Carr being chairman.

Mr. Evanslong, formerly with the Moody Oil Corporation at Cisco, Tex., is now with the Oil Country Specialties Company in the capacity of salesman. E. M. Brown has taken a position with the Moody corporation.

* * *

William Peden, government supervisor for the Cat Creek Field, has been transferred to the Kevin-Sunburst Field and makes his home in Shelby, Mont. He is to be district engineer, third district, United States Geological Survey.

* * *

R. O. MacDonald has been promoted by the Continental Oil Company from district representative with Casper, Wyo., headquarters, to superintendent of filling stations in Colorado and Wyoming with Denver, Colo., headquarters.

* * *

Frank Williams, formerly associated with the Marshall Eskridge Company, of San Antonio, Tex., is now with the finance and legal department of Moody-Seagraves, and lives in Houston. He returned recently from a trip to New York.

* * *

W. F. Rawlins and family are spending several weeks on a vacation to various points in California, making the trip by automobile. Mr. Rawlins is the district superintendent of the Gulf Pipe Line Company with headquarters at Fort Worth, Tex.

* * *

Albert Millar is in Trinidad, where he is conferring with A. Frank Dabell, of the British Controlled Oilfields. Mr. Millar proceeds to Venezuela where he is taking up his duties as production superintendent and field engineer for the British Controlled company.

* * *

J. W. Boyd has been transferred from the gasoline department of the Phillips Petroleum Company to the Philfuel organization to be located at Detroit, Mich., where he will be divisional manager of operations for the western area of the domestic gas division of the Philfuel company.

* * *

E. B. Reeser, president of the Barnsdall Oil Corporation, and the American Petroleum Institute, is spending a short period in California on business, leaving from San Angelo, Tex., for the Coast, after addressing the Texas Division of the Mid-Continent Oil and Gas Association meeting at San Angelo.

* * *

S. H. Keoughan, president of Continental Oil Company before its merger with Marland, is in Los Angeles, Calif., on a visit from his home at Denver, Colo. Mr. Keoughan has resigned as chairman of the executive committee of the company and it is reported will head a new company now in process of organization.

* * *

P. R. Smith, formerly in charge of the Arkansas division with headquarters at El Dorado, Ark., has been transferred to the Fort Worth, Tex., office of the Pure Oil Company to become assistant to B. S. SoRelle, manager of the Texas-Louisiana division of this company. R. L. Grigsby, who has been Mr. SoRelle's assistant, has been transferred to the Arkansas division, and will be in charge at El Dorado.

* * *

R. E. Wertz, vice president of the Producers & Refiners Corporation, Independence, Kans., was in Houston, Tex., several days on a general business trip over Texas following his attendance at a meeting of gas interests in Dallas, Tex. Mr. Wertz, while in Houston, visited in particular M. A. Hardie, vice president and general manager of the Houston Gulf Gas Company and the Dixie Gulf Gas Company, United Gas subsidiaries. Mr. Hardie was associated with Mr. Wertz nine years in the gas business.

* * *

R. E. McClung, of the Tulsa office of the Independent Oil & Gas Company, has recently been transferred to the Fort Worth, Tex., office as assistant to Gilbert Wood, manager of the Texas-New Mexico division. Fred Wilcox, formerly with the Vacuum Oil Company in charge of the West and North Central Texas district, with headquarters at Eastland, Tex., is now with the Independent Oil & Gas Company in charge of the same district but with headquarters at San Angelo, Tex. W. R. Walker has been transferred to San Antonio as assistant to J. H. Turner who is in charge of that office for the company. Marshall Brown has been transferred from Midland to Amarillo in charge of the Panhandle district.

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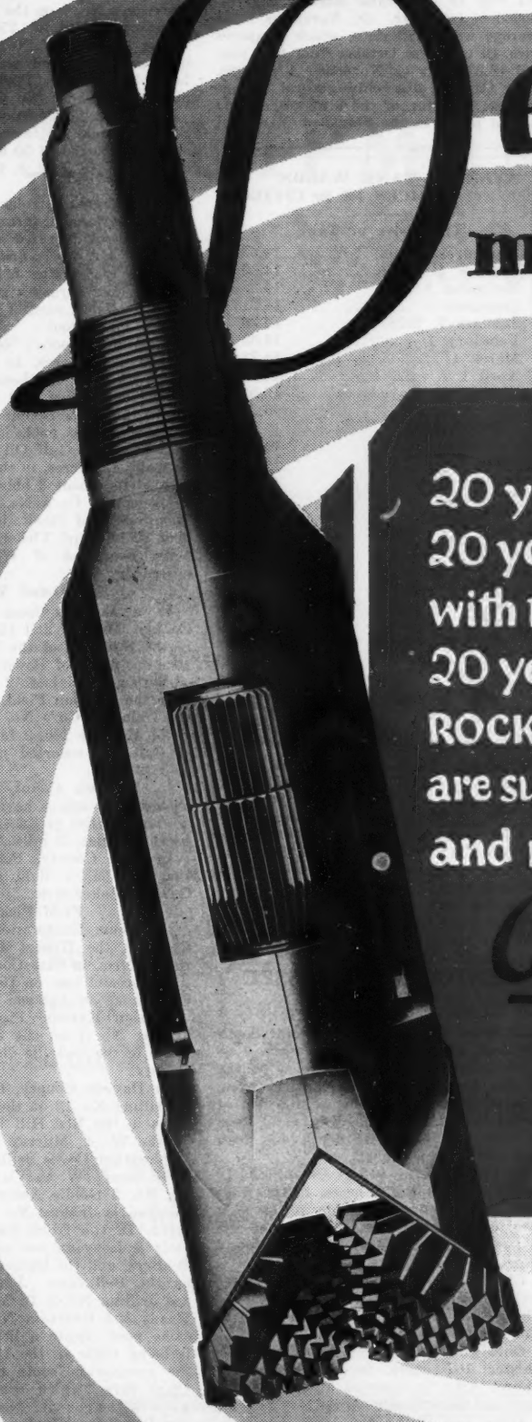

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T-1044

AVERAGE GASOLINE TANK WAGON PRICES

(Continued from Page 113)

but will be below the last six months' period of last year. On November 1 the average was 15.82 cents which compares with 16 cents on October 1 of this year and 16.28 cents on November 1 of 1928.

In October, the only general change was the lowering of the tank wagon and station prices in the Standard Oil Co. of New Jersey territory. One cent reductions were posted at several points in Wyoming and Utah but except for these changes the only revisions in prices were at scattered points and were usually influenced by a temporary local condition.

The average gasoline tax remained unchanged at 3.71 cents during November. Following are the detailed prices and price changes in the 50 cities included in the monthly survey.

AVERAGE TANK WAGON PRICES IN 50 CITIES

(Exclusive of Tax)

September 1, 1927	14.62
October 1	14.39
November 1	14.32
December 1	14.21
January 1, 1928	14.29
February 1	14.33
March 1	14.71
April 1	14.81
May 1	15.02
June 1	15.22
July 1	15.29
August 1	15.74
September 1	16.04
October 1	16.34
November 1	16.28
December 1	15.98
January 1, 1929	16.00
February 1	15.11
March 1	14.73
April 1	14.90
May 1	14.94
June 1	15.80
July 1	16.02
August 1	15.82
September 1	15.74
October 1	16.00
November 1	15.82

KENTUCKY-TENNESSEE

(Continued from Page 70)

sand from 525 to 548 feet, total depth 560 feet, and shot with 100 quarts.

John Breen and others' No. 3 on the E. E. Fuqua, in the Deanfield area, pumped 20 bbls. A string of 406 feet of casing was used in this hole, sand from 411 to 428 feet, total depth 450 feet, and shot with 80 quarts.

C. Claypool and others' No. 16 J. L. and J. H. Ralph 125 acres, in the Adaburg area, produced 20 bbls. initial at a total depth of 454 feet. A string of 405 feet of casing was set and the sand found from 430 to 449 feet.

Chester Oil Co.'s No. 1 on the Walter Stiles farm reported good for 10 bbls. Three Sands Oil Co. found a dry hole in No. 1 on the W. Crow farm.

Ohio Oil Co.'s No. 1 on the A. G. Phister 107 acres, in the Friendship Church area, is reported at 60 bbls. initial and No. 2, same farm, at 20 bbls.

Hupp and Duff's No. 1 on the E. S. Dunn is reported a dry hole, as is Oliver Jenkins and others' No. 1 on the F. C. Hanna farm.

C. E. Daugherty and others' No. 4 on the W. H. Harper 30 acres is good for 4 bbls. Cumberland Petroleum Co. hit a dry spot in No. 1 on the Alfred Brown farm.

In the Barnett's Creek Church area, Hupp and Duff's Nos. 17 and 18 on the Clyde Bartlett farm produced 150 and 100 bbls. respectively.

Brenner, Adams and others' No. 4 A. F. Bellamy farm, in the Deanfield area, is good for about 3 bbls. New Domain Oil & Gas Co.'s No. 8 on the F. L. Royal 94 acres, in the Friendship Church Pool, is said to show for 1 bbl., but with a heavy gas volume. Arminstead Oil Co.'s No. 1 on the Arnold Newton 38 acres reported good for 10 bbls.

The Owensboro Field of Daviess County makes a better showing than for some time. In the Red Hill Pool, Evans & Garrison's No. 4 on the Davis heirs farm is reported good for 150 bbls. Johnson, Young and others' No. 2 Mackey farm, offsetting the good well on the Clark farm, in the Utica Pool, is reported 100 bbls. at around 1,260 feet.

Petroleum Exploration Co.'s No. 1 on the Steve Johnson farm, in the Red Hill area, is reported at 50 bbls. initial. Same company's No. 1 I. J. Clark, same pool, 10 bbls.

Cumberland Petroleum Co.'s No. 7 Elizabeth Salmon farm, in the Burton-Salmon Pool, is rated at 30 bbls.

White and others drilled a dry hole in a second test on the J. L. Howard farm. Brewer and Thrasher got a dry hole on the Cecil farm, east of the Fuqua farm, in the Jones Pool.

Wade and Moore's No. 1 on the F. L. Bourman 45 acres, in the Jones Pool, about 12 miles southeast of Owensboro, shows for 50 bbls. and a nice volume of gas. Stimson & Robbins' No. 5 Fireline 68 acres, same pool, is reported at 25 bbls. Eastern Gulf Oil Co.'s No. 12 M. C. Ruby 125 acres, in the Red Hill Field is good for about 3 bbls.

Mecca Oil Co.'s No. 2 Zulu Johnson farm, south of Habit, is showing for 15 bbls. White and Vickers' No. 4 Stinnett heirs, southeast of Whitesville, is reported dry.

Scattered Wells

In the Bowling Green Field of Warren County, Morrow and Hay's No. 10 well in the NW cor. of the E. Morgan farm, 10 miles north of Bowling Green, reported with an initial of 12 bbls. at 532 feet.

In the Calhoun Field, McLean County, the Ohio Oil Co.'s No. 4 on the George B. McManama No. 2 farm, 3 miles west of Calhoun, reported pumping 20 bbls. at 1,325 feet.

In Hancock County, Pellville Field, Vickers and others have what shows for a 10-bbl. initial producer in No. 3 on the Birch Parrott, 3 miles east of Pellville.

In Clay County, Petroleum Exploration Co. has a light gas well on the Gardner-Baker farm.

Field Pickups

Petroleum Exploration Co. made locations on the Gilbert Baker and Lillie Peters farm, in Clay County, and is drilling a second test on the Warfork Land Co.'s tract in Jackson County.

Missouri-Kansas Pipe Line Co. is drilling No. 1 on the James McDaniels farm, in the Pellville district of Hancock County.

In Daviess County, the Eastern Gulf is drilling No. 13 on the M. C. Ruby 125 acres in the Red Hill Pool, also No. 10 on the W. A. Murray farm. Petroleum Exploration Co. is drilling No. 2 on the J. H. Gray. W. C. Vlay, agent, is drilling No. 2 Goldie Ambrose farm. D. C. Stimson is drilling No. 1 West Jackson farm. In the Utica Pool, same county, Daly & Lowman are working on the B. Walters, and the Ohio Oil Co. is drilling on the Bell farm. Johnson and Young are drilling No. 3 B. Mackey farm, and Evans and Garrison No. 3 I. J. Clark, same pool. Quite a little drilling spurt is being made in the Utica Pool due to the completion some time ago on the Clark farm, which was among the big wells of the county. Near Panther Creek the Petroleum Exploration Co. is drilling No. 2 on the Steve Johnson farm, and made a location for No. 1 on the J. S. Huff lease.

E. D. Fagin of Terre Haute, Ind., was a visitor in the Owensboro Field, and Hopkins County, Kentucky, where he has some undrilled holdings.

The Wah-Shah-She Oil Co. of Bartlesville, Okla., and the Wickliff Coal Co. of Greenville, Ky., have set a string of 1,000 feet of 10-inch casing at a deep test to be made to the McCloskey sand and if not a commercial producer the Corniferous formation which lies close to 2,800 feet. This test is drilling on the Casebier property, 3½ miles northeast of Drakesboro, in Muhlenberg County. Steve Wagner, the contractor, is also from the Mid-Continent Field.

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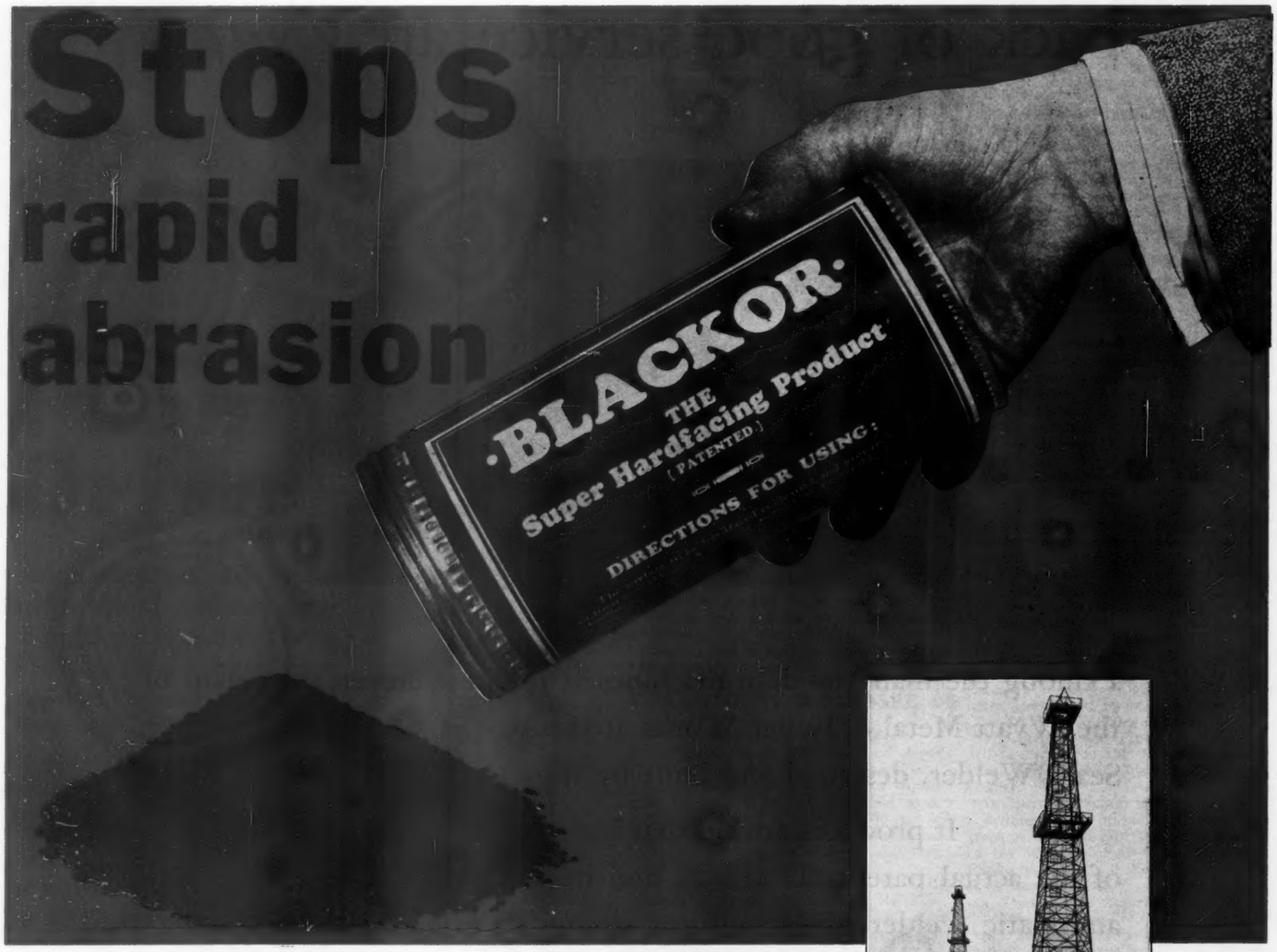

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 80)

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Siemmons, SW cor., Sec. 73, Blk. M-17, B.S.&F. Sur. ..... Rig blown down.

Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. ..... S.D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... S.D. 4,675 ft.

COCHRAN COUNTY

Continental Oil Co.'s No. 1 Slaughter-A, 330 ft. from W, 430 ft. from S lines, League 130, Carson County School land ..... Small S.G. 4,745-50 ft; 3,000 ft. oil in hole 4,883 ft; T.D. 5,001 ft; P.B. 4,900 ft; oil pay 4,873-88 ft; swbd. 65 bbls. oil and 5 bbls. wtr; shot 150 qts. from 4,735-70 ft; no results.

Westbrook et als' No. 1 Slaughter, 400 ft. from S and E, Labour 67, League 118, Knox Co. School lands ... Drlg. 2,750 ft.

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. from N line, 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur. T.D. 3,006 ft; contract depth.

Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... S.D. 3,510 ft.

Southland Oil Co.'s No. 1 Lewis, C SE 40 ac., Sec. 3, Blk. 29, H.&G.N.R.R. Sur. ..... S.D. 2,570 ft.

GRAY COUNTY

Adams Oil Co.'s No. 4 Morse, 330 ft. S and W, NE cor. Sec. 3, Blk. 26, H.&G.N.R.R. Sur. ..... Drlg. 2,440 ft.

Alexander and Shell Pet. Corp.'s No. 1 Harrah-McKinney, 330 ft. S and W, NE cor. E½ SE, Sec. 163, Blk. 3, I.&G.N.R.R. Sur. ..... Cmtd. 8¼-in. csg; T.D. 2,550 ft.

British-American Oil Co.'s No. 2 Purviance, 330 ft. N and E, SW cor. E 160 ac., Sec. 61, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.

Champlin Ref. and Danciger's No. 3 Cook-Faulkner, 330 ft. S and E, NW cor. W 120 ac. of E 200 ac., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.

Clayton-Key Oil Co.'s No. 1 Key, 330 ft. from S and W of E 42 ac. of N 84 ac. of S 168 ac., Sec. 1, B.&B. Sur. ..... Location.

Constantine et als' No. 1 Crews, 330 ft. S and W, NE cor. SW, Sec. 20, Blk. 30, H.&G.N.R.R. Sur. ..... S.D. 1,540 ft.

Danciger et als' No. 11 Jackson, 330 ft. S, 1,320 ft. W, NE cor. NW, Sec. 88, Blk. B-2, H.&G.N. Sur. ..... T.D. 2,906 ft.

Danciger O. & R. Co.'s No. 1 McLarty, 1,220 ft. from S, 330 ft. from W, W½ NW, Sec. 10, Blk. 1, A.C. H.&B. Sur. ..... 12,000,000 ft. gas 2,275-2,350 ft; 50,000,000 ft. gas 2,275-2,490 ft; 18,000,000 ft. gas 2,500-2,620 ft; drlg 3,375 ft; 18,000,000 ft. gas; to P.B.

Danciger O. & R. Co.'s No. 5 Morse, 330 ft. N and E, SW SW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Running 10-in. csg; T.D. 725 ft.

Danciger O. & R. Co.'s No. 1 Shaw, 330 ft. from S, 286 ft. from E of E 39½ ac., NW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... T.D. 2,588 ft.

Danciger O. & R. Co.'s No. 1 Williams, 330 ft. from N, 330 ft. from E, S½ NW ..... Estimated 15,000,000 ft. gas 2,610-70 ft; S.D. 2,720 ft.

Dunlop's No. 4 Morse, 330 ft. N and E SW cor. SW, Sec. 17, Blk. A-9, H.&G.N.R.R. Sur. ..... T.D. 2,431 ft; cmtd. 8¼-in. csg.

Sines & Reiger's (formerly Eslick et als') No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... S.D. 3,206 ft.

Gardner Bros. and Collins' No. 2 Saunders, 955 ft. from S, 330 ft. from E of W 68 ac. E½, J. G. Eustice Sur. Location.

Gulf Prod. Co.'s No. 1 Barrett, 967 ft. N and E, SW cor. NE, Sec. 131, Blk. 3, I.&G.N.R.R. Sur. ..... Location.

Gulf Prod. Co.'s No. 3 Worley-A, 330 ft. N, 1,650 ft. W, SE SW, Sec. 36, Blk. 3, I.&G.N.R.R. Sur. ..... Temp. abd. at 3,163 ft.

Gulf Prod. Co.'s No. 3 Saunders, 330 ft. S, 990 ft. E, NW cor. its 130-ac. lease out of SW cor., Sec. 40, Blk. 3, I.&G.N.R.R. Sur. ..... Rigging up.

Guernsey Oil Co.'s No. 1 Pope, 330 ft. from N and W lines, W½ SW, Sec. 173, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,950 ft.

Guernsey Oil Co.'s No. 1 Vaniman, 330 ft. N and W, E½ NE, Sec. 175, Blk. 3, I.&G.N.R.R. Sur. ..... S.D. 1,105 ft.

Haymer O. & G. Co.'s No. 1 Morse, 330 ft. each way out of SE cor. E½ SE, Sec. 45, Blk. A-9, H.&G.N. Sur. ..... S.D. 350 ft.

Herragan Oil Co.'s No. 1 Bradford, 330 ft. from N, 990 ft. from E. Sec. 123, Blk. B-2 ..... First S.G. 2,475-80 ft; 15,000,000 ft. gas 2,515-40 ft.; S.D. 3,140 ft.; S.O. 2,932-50 ft.

Hinerman Bros.' No. 1-A Taylor, 330 ft. from NE E½ NE, Sec. 8, Blk. H, A. H. Wallace Sur. ..... Drlg. 2,610 ft.

Humble O. & R. Co.'s No. 1 Chapman, 330 ft. from N and E, NW, Sec. 69, Blk. 25, H.&G.N. Sur. ..... 12,000,000 ft. gas 2,680 ft; S.D. 2,825 ft.

Humble O. & R. Co.'s No. 3 Jackson, 230 ft. from E line, 330 ft. from N line of E 110.5 ac., Sec. 90, Blk. B-2, H.&G.N.R.R. Sur. ..... S.G. 2,533 ft; S.O. 2,782 ft; S.D. 3,050 ft; S.G. 2,900 ft; T.P. 2,943 ft.; I.P. first 24 hrs., 924 bbls.

Humble O. & R. Co.'s No. 4 Jackson, 976 ft. N, 330 ft. E, SW cor. E 95.25 ac., Sec. 90, Blk. B-2, H.&G.N. Sur. S.G. 2,271 ft; S.D. 2,950 ft; flowed 180 bbls; T.P. 2,882-90 ft; C.O.

Humble O. & R. Co.'s No. 1 Palmer, 330 ft. from N and E lines, of W 100 ac., Sec. 31, Blk. B-2, H.&G. N. Sur. ..... S.D. 3,120 ft; to pump.

Lyon et als' No. 1-A Morse, 330 ft. from S and W, NW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Building rig.

Magnolia Pet. Co.'s No. 7 Bowers, 990 ft. S and E, NW cor. NW, Sec. 63, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 2,968 ft; T.P. 2,855 ft; I.P. 150 bbls. first 24 hrs.

Magnolia Pet. Co.'s No. 8 Bowers, 990 ft. N and E, SW NW, Sec. 63, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,826 ft.

Magnolia Pet. Co.'s No. 4 Magnolia, 990 ft. S and 330 ft. W, NE cor. NE, Sec. 11, Blk. 3, I.&G.N.R.R. Sur. Drlg. 2,250 ft.

Magnolia Pet. Co.'s No. 1 Wright, 330 ft. S and W lines, S½ SW, Sec. 13, Blk. 3, I.&G.N. Sur. ..... 15,000,000 ft. gas 2,707-10 ft; S.D. 2,710 ft.

Magnolia Pet. Co.'s No. 2 Wright, 820 ft. from W, 330 ft. from S, S½ SW, Sec. 13, Blk. 3, I.&G.N. Sur. .... S.D. 2,787 ft; swbd. 410 bbls. first 24 hrs.

McAuley et als' No. 3 Morse, 330 ft. S and E, NW cor. S½ NE, Sec. 2, Blk. 26, H.&G.N.R.R. Sur. ..... Cellar.

Oil Operators' No. 1 Bowers, 330 ft. from N, 330 ft. E, Sec. 93, Blk. B-2, H.&G.N. Sur. ..... Show oil and gas 2,400-17 ft; S.D. 3,090 ft; S.O. 3,036-55 ft; first gas 2,483 ft; increased at 2,500 ft., 2,544 ft. and 2,950 ft.

Operators Oil Co.'s No. 1 Lovett, 330 ft. from N and W lines, W½ NE, Sec, 57, Blk. B-2, H.&G.N. Sur. Gas 2,390 ft; S.O. 2,837-47 ft; T. D. 3,061 ft; 1,000 ft. oil in hole.

Operators Oil Co.'s No. 5 Cook-Faulkner, 990 ft. N, 330 ft. W, SE W 90 ac., Sec. 30, Blk. B-2, H.&G.N. Sur. S.D. 2,748 ft; standardizing.

Operators Oil Co.'s No. 6 Cook-Faulkner, 330 ft. S and E, NW cor., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur. .... S.G. 2,424 ft. and 2,477 ft; S.D. 2,750 ft.

Operators Oil Co.'s No. 7 Cook-Faulkner, 330 ft. S, 820 ft. E, NW cor., Sec. 30, Blk. B-2, H.&G.N. Sur. ..... S.G. 2,380 ft; S.D. 2,691 ft.

Operators Oil Co.'s No. 8 Cook-Faulkner, 330 ft. S, 1,310 ft. E, NW cor., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur. Estimated 40,000,000 ft. gas 2,750 ft; S.D. 2,785 ft.

Phillips Pet. Co.'s No. 6 Jackson, 330 ft. from N, 990 ft. from E, line, S½ NE, Sec. 88, Blk. B-2, H.&G. N.R.R. Sur. ..... T.D. 3,030 ft.

Phillips Pet. Co.'s No. 6 Palmer, 330 ft. S and W, NE cor., Sec. 81, Blk. 2, H.&G.N.R.R. Sur. ..... S.D. 2,743 ft.

Plains Drlg. Co.'s No. 1-A Chapman, 330 ft. from S and W, NE, Sec. 10, Blk. 26, H.&G.N. Sur. ..... S.G. 2,240 ft; 15,000,000 ft. gas 2,240-90 ft.; S.D. 2,742 ft.; 300 ft. oil in hole.

Queen Oil Co.'s No. 1 Lovett, 330 ft. N and W, W½ NE, Sec. 35, Blk. B-2, H.&G.N.R.R. Sur. ..... Rig.

Quillian et als' No. 1 Barrett, 330 ft. from N, 330 ft. from E, Sec. 131, Blk. 3, H.&G.N. Sur. ..... 20,000,000 ft. gas 2,660-2,705 ft; S.D. 2,850 ft; run 8¼-in. csg.

Ray et als' No. 1 Noble, 240 ft. from S and 330 ft. from W line, W 80 ac., SW, Sec. 10, Blk. A-6, H. &G.N. Sur. ..... Drlg. 2,300 ft.

Rieger & Steckoll's No. 1 Bohr, 330 ft. from S and E, Sec. 37, Blk. B-3, H.&G.N. Sur. ..... Drlg. 580 ft.

Robertson & Devore's No. 1 Saunders, 330 ft. from S and W, E½ NW, Sec. 40, Blk. 3, H.&G.N.R.R. Sur. .. Location.

Shamrock O. & G. Co.'s No. 3 Saunders, 330 ft. N and E, SW E½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... S.D. 2,438 ft.

Shamrock O. & G. Co.'s No. 1 Taylor, 330 ft. each way out of NE cor. NW, Sec. 1, Blk 2, H.&G.N. Sur. .... Fishing 1,490 ft.

Skelly Oil Co.'s No. 1 Chapman, 330 ft. from S and E, S½ NW, Sec. 69, Blk. 25, H.&G.N. Sur. ..... T.D. 2,675 ft; S.O. 2,645-50 ft.

Skelly Oil Co.'s No. 5 Jackson, 970 ft. N, 330 ft. W, SE cor. W 190 ac. of Sec. 90, Blk. B-2, H.&G.N. Sur. .. S.G. 2,572 ft; T.P. 2,920 ft; 3 bbls. per hr.; S.D. 3,034 ft; swbd. 360 bbls. in 13 hrs; to shoot.

St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W, NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Spudded and S.D.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor., Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Stogner Meaders' No. 1 Taylor, 330 ft. from S and E, SW, Sec. 7, Blk. H, A. H. Wallace Sur. ..... 1,000,000 ft. gas 2,490-2,535 ft; 2,000,000 ft. gas; T.P. 2,490 ft; S.D. 2,710 ft.

The Texas Co.'s No. 3-B Chapman, 330 ft. S and E, NW cor. SE, Sec. 69, Blk. 25, H.&G.N.R.R. Sur. .... 4,000,000 ft. gas 2,140-50 ft; T.D. 2,655 ft; rebuilding rig.

The Texas Co.'s No. 3 Combs-Worley, 330 ft. N and W, SE cor., Sec. 26, Blk. 3, I.&G.N. Sur. ..... 4,000,000 ft. gas 2,135-40 ft; S.D. 2,710 ft.

The Texas Co.'s No. 3 McLarty-B, 1,326 ft. S, 660 ft. E, NW E½, Sec. 10, Blk. 1, A.C.H.&B. Sur. ..... 4,000,000 ft. gas 2,135-40 ft; drlg. 2,920 ft.

The Texas Co.'s No. 14 Saunders, 955 ft. N, 330 ft. W, SE cor. W½, J. G. Eustis Sur. ..... S.D. 2,510 ft.

The Texas Co.'s No. 15 Saunders, 330 ft. N and W, SE cor. W½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. .... S.D. 2,600 ft.

Travis & Rieger's No. 1 Mackie, 330 ft. from N and E, Sec. 114, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 2,267 ft.

Wright Wilson, trustee's No. 1 Chapman, 175 ft. from S and E lines, N½ NW, Sec. 69, Blk. 25, H.&G.N. Sur. S.D. with S.O. 2,685 ft.

Wilcox-Pampa Oil Co.'s No. 10 Combs-Worley, 330 ft. S and W, NE cor. SW SW, Sec. 35, Blk. 3, I.&G. N.R.R. Sur. ..... Location.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 ft; contract depth 5,000 ft. ..... C.O. 3,250 ft; set 6-in. csg. 3,233 ft.

HUTCHINSON COUNTY

Alamosa Oil Co.'s No. 4 Sanford, 310 ft. S, 320 ft. W, NE cor. N 160 ac., S 240 ac., Sec. 85, Blk. 46, H.& T.C. Sur. ..... S.O. and wtr. 3,010-11 ft; S.D. 3,095 ft.

Continental Oil Co.'s No. 1-B Johnson, 330 ft. S and W, NE cor. NW, Sec. 6, Blk. 1, B.&B. Sur. ..... 10,000,000 ft. gas; 1,000 ft. oil in hole 3,088 ft; drlg. 3,178 ft.

Danciger O. & R. Co.'s No. 3 Moore, 330 ft. S and E, NW W½ SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. .... Location.

Gates & Jones' No. 1 C. H. Jasper, 1,850 ft. N, 1,800 ft. W, SE cor., Sec. 23, Blk. M-23, T.C.R.R. Sur. ..... Location.

Huey et als' No. 3 Smith et al, 330 ft. from N, 660 ft. from W, S 40 ac. of E 100 ac., SE, Sec. 12, Blk. Y. Fishing 2,702 ft.

Midwest Expltn. Co.'s No. 3 Moore, 330 ft. N, 330 ft. W, SE NE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Rigging up.

Oates & Jones, No. 1 Jasper, 450 ft. S, 330 ft. W, NE 121-ac. tract, Sec. 23, Blk. M-23, T.C.R.R. Sur. ..... Rigging up.

O. B. Penney's No. 2 Johnson Bros., 330 ft. from S line, 330 ft. from W line, W½ NE, Sec. 35, Blk. Y, A.&B. Sur. ..... 31,000,000 ft. gas 1,990 ft; S.D. 3,060 ft; S.O. 3,040-45 ft; I.P. 60 bbls.

Phillips Pet. Co.'s No. 6 (Florence), 330 ft. each way from S and W lines, E½ ..... T.D. 2,876 ft; T.P. 2,805 ft; I.P. 70 bbls; shot 54 qts 2,788-2,838 ft; C.O. 2,876 ft.

Reliance O. & G. Co.'s No. 2 Sanford, 330 ft. S and E, NW W½ of N 80 ac. of S 320 ac., Sec. 83, Blk. 46, H.&T.C. Sur. ..... S.D. 2,515 ft.

Skelly Oil Co.'s No. 2 Lee Bivins, 306 ft. from E, 1,242 ft. from S line, S 160 ac. of N 320 ac., Sec. 84, Blk. 46, H.&T.C.R.R. Sur. ..... Drlg. 2,829 ft.

Smith & McDaniel's No. 1 Pitcher, 330 ft. from S and E, Sec. 19, Blk. M-21, T.C.R.R. Sur. ..... Rig.

The Texas Co.'s No. 3 Moore, 330 ft. S, 1,338 ft. E, NW cor. SW, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 2,235 ft.

The Texas Co.'s No. 4 J. L. Moore, 330 ft. S and W, NE cor. SW, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Rigging up.

Travelers Oil Co.'s No. 2 Cockrell, 350 ft. from E and S lines, Sec. 8, Blk. B-3, D.&S.E. Sur. ..... 1,000,000 ft. gas 2,610-2,770 ft; T. D. 3,039 ft; T.P. 3,010-39 ft; averaging 60 bbls. daily; will shoot.

LAMB COUNTY

Graham O. & G. Co. et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... S.D. 3,635 ft.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... Fishing 3,625 ft.

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... S.D. 4,790 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; fishing 4,167 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Perkins-A, 330 ft. each way out of NW cor. NE, Sec. 76, Blk. 3 ..... Drlg. 3,515 ft.

Canadian River Gas Co.'s No. 1-C Sneed, 660 ft. from N and E, SW, Sec. 46, Blk. 6-T, T.&N.O.R.R. Sur. .. Rigging up.

Dana O. & G. Co.'s No. 1 Anthony, C NW, Sec. 260, Blk. 44, H.&T.C.R.R. Sur. ..... Drlg. 2,893 ft.

Fritch O. & G. Co.'s No. 1 Lee Bivins, C N 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... 2,000,000 ft. gas 1,550-65 ft; S.D. 2,225 ft.

Red River Gas Co.'s No. 1 J. M. Shelton, 330 ft. each way from SE cor., Sec. 52, Blk. 3, G.&M. Sur. ..... S.D. 1,910 ft.

MOTLEY COUNTY

Expltn. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C, B.&C.N.G.R.R. Sur. ..... Drlg. 3,780 ft.

Expltn. Co.'s No. 6 Matador, 330 ft. from N line, 330 ft. from E line, Sec. 132, Blk. M ..... U.R. 6-in. csg. 3,700 ft.

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1 Allison "A," 386 ft. from E line, 5,439 ft. from S line, Sec. 1, W. T. Palmer Sur. — Drlg. 2,072 ft.

RANDALL COUNTY

W. A. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14 — S.D. 1,250 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. A-5 — T.D. 5,992 ft; shot 10 qts. 5,270-93 ft; S.O. 5,288 ft; C.O.

WHEELER COUNTY

Lela O. & G. Co.'s No. 1 Williams & Laycock, 330 ft. from S, 209 ft. from W, W½ NW, Sec. 20, Blk. A-8, H.&G.N. Sur. — Fishing 1,755 ft.

Lone Star Gas Co.'s No. 1 Simms, C SW NE, Sec. 103, Blk. 23, H.&G.N.R.R. Sur. — Location.

Magnolia Pet. Co.'s No. 2 Laycock, 680 ft. N, 700 ft. E, SW cor. S½ SW, Sec. 10, Blk. 27, H.&G.N.R.R. Sur. — Drlg. 1,030 ft.

Staley-Wynne's No. 1 Hicks, C NW SE, Sec. 53, Blk. 17, H.&G.N.R.R. Sur. — S.D. 1,750 ft.

Upham Gas Co.'s No. 5 Close-Gooch, 30 ft. N, 660 ft. E, SW cor. SW NW, Sec. 81, Blk. 23, H.&G.N.R. Sur. — Location.

Upham's No. 1 Cuddleback, C SE SE, Sec. 2, Blk. 24, H.&G.N.R.R. Sur. — Cellar.

Vaughn et als' No. 3 Ackley, 330 ft. from N, 330 ft. from W, Sec. 4, Blk. 27, H.&G.N. Sur. — T.D. 1,840 ft; 5,000,000 ft. gas 1,660-1,770 ft; junked hole; skidding rig.

Wischkamper et als' No. 1 Curry, C NE SE, Sec. 53, Blk. 23, H.&G.N. Sur. — 10,000,000 ft. gas 1,750-90 ft; drlg. 1,850 ft; 10,000,000 f.. gas; T.P. 1,790-1,805 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 79)

CRANE COUNTY

Church & Field's No. 4 University-Dewell, 2,310 ft. N and 990 ft. E of SW cor. Sec. 39, Blk. 30, University Land — Flowed 400 bbls. 2,862 ft.; total depth 2,885 ft.

Duffey et al's No. 7 Cowden Bros., 1,320 ft. from S and 1,420 ft. from E of Sec. 18, Blk. X, C.C.S.D.&R.G.N.G.R.R. Sur. — Location.

Gulf Prod. Co.'s No. 69 McElroy, 1,442 ft. S and 330 ft. E of NW cor. Gulf's lease, Sec. 185, Blk. F, C.C.S.D.&R.G.N.G.R.R. Sur. — Top salt 1,180 ft.; drlg. 1,380 ft.

Gulf Prod. Co.'s No. 70 McElroy, 1,442 ft. S and 2,970 ft. W of NE cor. of Gulf's lease out of Sec. 201, Blk. 5, C.C.S.D.&R.G.N.G.R.R. Sur. — Drlg. 800 ft.

Humble O. & R. Co.'s No. 2-D University, 990 ft. from W and 330 ft. from S of NW Sec. 34, Blk. 30 — Top lime 2,858 ft.; shut down 2,865 ft.

Republic Prod. Corp.'s No. 1 Hughes, 990 ft. from N and 1,650 ft. from W of their lease, Sec. 2, Julia Prather Sur. — Location.

Simms-Atlantic's No. 2-F University, Sec. 45, Blk. "O," 2,310 ft. from N, 330 ft. from E, University — Top salt 1,020 ft.; drlg. 2,720 ft.

The Texas Company's No. 3 University, 330 ft. N and E of SW of N half Sec. 46, Blk. 30, University Land — Top salt 1,005 ft.; fishing 2,635 ft.

The Texas Company's No. 2 University-Beasly, 330 ft. S and E of NW of S half Sec. 46, Blk. 30, University Land — Fishing 2,900 ft.; top lime 2,725 ft.; top pay 2,850 ft.

Tidal Oil Co.'s No. 2 University D, 330 ft. S and W of NE cor. NW of SW Sec. 34, Blk. 20, University Land — Top pay 2,955 ft.; oil rose 2,000 ft. in hole; drlg. 2,988 ft.

CROCKETT COUNTY

California Co.'s No. 1 Shannon, Lease 3, 1,663 ft. N and 2,323 ft. W of SE cor. Sec. 42, T.C.R.R. — Building rig.

Cushing R. & G. Co.'s No. 3 Powell, 330 ft. from S and E of Sec. 53, Blk. BB, G.C.&S.F.R.R. Sur. — Cellar.

Empire Gas & Fuel Co.'s No. 1 Shannon, 330 ft. from N and E of Sec. 42, T.C.R.R. Sur. — Spudding.

Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor., Sec. 33, Blk. 1, I.&G.N. Sur. — Shut down 1,355 ft.

Magnolia Pet. Co.'s No. 1 Hoover, 2,310 ft. from N and 330 ft. from E of Sec. 12, Blk. 1, G.C.&S.F.R.R. Sur. — Location.

T. P. Coal & Oil Co.'s No. 1 Shannon, 330 ft. from S and W of Sec. 44, T.C.R.R. Sur. — Spudding.

CULBERSON COUNTY

Grisham & Hunter Oil Corp.'s No. 1 fee, 330 ft. from S and W of Sec. 14, Blk. 59, T.&P. — Oil show 1,437 ft.; drlg. 2,450 ft.

Grisham & Hunter's No. 1 Seay, 330 ft. from S and W of Sec. 16, Blk. 59, Twp. 7, T.&P.R.R. Sur. — Rigging up.

Grisham-Hunter's No. 3 Seay, 330 ft. from S line, 330 ft. from W line, Sec. 16, Blk. 59, Twp. 7 — Moving in machinery.

Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W. Sec. 20, Blk. 32 — Small show oil 1,331 ft.; shut down 2,260 ft.; hole full water; elev. 3,374 ft.; shut down for 30 days.

West Coast Oil & Exploration Co.'s No. 1 McGregor, C NW, Sec. 14, Blk. 31 — Slight show oil 740 ft.; shut down 825 ft.; repairing engine.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E. Sec. 1, Blk. 97, Public School Land — Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; oil show 2,528 ft.; hole full sulphur water; running 6-in. casing; shut down 3,508 ft.

ECTOR COUNTY

Anderson's No. 1 fee, 1,320 ft. E along N line, Sec. 19, and 150 ft. N at right angles with line, Sec. 18, Blk. B-16, Public School Land — Moving in material.

Penn-Humble's No. 1 York, 330 ft. N, 2,640 ft. W. Sec. 16, Blk. 44, Twp. 3s, T.&P.R.R. Sur. — Drlg. 485 ft.

EL PASO COUNTY

Layter's No. 1 Malone, 2,200 ft. SW and NW, Sec. 46, J. M. Day Sur. — Fishing tools 1,481 ft.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. — Shut down 3,600 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 1 Barrett, Sec. 191, Blk. 1, 330 ft. from S and W of NE, B.B.B.&C.Ry. — Total depth 3,116 ft.; top pay 3,113-16 ft.; 1,500 ft. oil in hole.

Cranfill & Reynolds' No. 1 Bledsoe, 330 ft. N and E of SW SE, Sec. 200, B.B.B.&C.R.R. Sur. — Location.

Landreth Prod. Corp.'s No. 2 Cooper, 330 ft. S and W of NE cor. Sec. 116, Blk. 1, H.&T.C.R.R. Sur. — Drlg. 2,000 ft.

Magnolia Pet. Co.'s No. 1 Lee, Sec. 357, 2,310 ft. from N and 4,286 ft. from W — Underreaming 6-in. at 3,350 ft.

Midwest Oil Co.'s No. 1 Steele, 660 ft. from S, 440 ft. from W, Sec. 210, Blk. 1 — Show oil 2,940-45 ft.; top pay 3,192 ft.; shut down 3,193 ft. for storage.

H. Riley's No. 1 J. H. Veatch, 250 ft. S and 990 ft. E of NW cor., Sec. 4, English Sur. — Shut down 3,300 ft.

Roeser-Pendleton and Amerada's No. 1 First Nat'l Bank of Waco, 660 ft. N and 600 ft. W of SE cor. NE of Sec. 204, B.B.B.&C. Sur. — Drlg. 1,665 ft.

GAINES COUNTY

Louisiana O. & R. Co.'s No. 1 Ralph, 1,320 ft. from S and W of Sec. 7, Blk. A-28, Public School Land — Drlg. 630 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Stokes, 2,310 ft. N and E of SW Section 32, Blk. 5, G.H.&H.R.R. Sur. — Drlg. 735 ft.

Bell Thompson's No. 1 Tuffing, 330 ft. from S, 2,310 ft. from E, Sec. 10, Blk. 6, H.&G.N. — Shut down 2,610 ft.

GLASSCOCK COUNTY

The California Co.'s No. 3 Currie, 990 ft. S and 2,310 ft. W of NE cor., Sec. 219, Blk. 29, W.&N.W.R.R. Sur. — Shut down 2,177 ft.

California Co.'s No. 1 Jones, 330 ft. S from N and E lines, Sec. 25, Blk. 33, Twp. 2s, T.&P. Sur. — Rig.

Chal Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. — Shut down 1,147 ft.

Glasscock et al's No. 1 Edwards, 330 ft. from S, 1,650 ft. from E, Sec. 18, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Drlg. 1,700 ft.

Kirby Pet. Co. et al's No. 2 Baker, 990 ft. S and 330 ft. E of NW cor. Sec. 23, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Drlg. 1,875 ft.

Lion O. & R. Co.'s No. 2 Coffee, 330 ft. from N and 990 ft. from E of Sec. 22, Blk. 33, Twp. 2s — Total depth 2,040 ft.

Lion Oil & Ref. Co.'s No. 3 Coffee, 990 ft. S and 330 ft. W of NE cor. Sec. 22, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Topped lime 2,053 ft.; setting pipe 2,068 ft.

Shell Pet. Corp.'s No. 1 Coffee, 330 ft. from S and 1,650 ft. from E of Section 15, Blk. 33, Twp. 2s — Top pay 2,098 ft.; shut down at 2,239 ft.; 1,600 ft. oil, 600 ft. water, in hole.

Shell Pet. Corp.'s No. 1-B Kloh-Rumsey, 330 ft. from N and W of Sec. 11, Blk. 33, Twp. 3s, T.&P. — Drlg. 2,450 ft., lime and anhydrite.

Simms Oil Co.'s No. 1 Coffee, 330 ft. from N and 1,650 ft. from E of Sec. 22, Blk. 33, Twp. 2s, T.&P. — Drlg. 1,777 ft.

E. L. Smith Oil Co.'s No. 2 Coffee, 330 ft. from S and 990 ft. from E of Sec. 15, Blk. 33, Twp. 2s, T.&P. — Drlg. 700 ft.

Sun Oil Co.'s No. 4 Phillips, 330 ft. N and 990 ft. W of SE cor. Sec. 14, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Shut down 1,470 ft.

World Oil Co.'s No. 2-C McDowell, Sec. 21, Blk. 34, Twp. 2s, 330 ft. S and 2,310 ft. E of NW cor. — Rig.

HOWARD COUNTY

American Maracaibo's No. 2-B Settles, 990 ft. N and 2,310 ft. E of SW cor., Sec. 135, Blk. 29, W.&N.W. R.R. Sur. — Location.

Continental Oil Co.'s No. 2 Clay, Lease 1, 330 ft. N and 990 ft. E of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. — Location.

Continental Oil Co.'s No. 2 Kloh-Rumsey, 2,310 ft. S, 330 ft. W of NE cor. Sec. 13, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Shut down 2,308 ft.; testing water.

Continental Oil Co.'s No. 5 Kloh-Rumsey, 2,310 ft. S and 990 ft. W of NE cor. Sec. 13, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Running 8-in. casing 2,078 ft.

Continental Oil Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor., Sec 138, Blk. 29, W.&N.W.R.R. Sur. — Show oil 2,595-2,675 ft.; shut down 2,750 ft.

Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W.R.R. Sur. — Shut down 1,456 ft.

Group No. 1 & Continental Oil Co.'s No. 7-A Settles, 1,650 ft. N and 2,310 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W.R.R. Sur. — Show oil 2,272 ft.; rigging up standard tools 2,942 ft.

Group No. 1 & Continental Oil Co.'s No. 8-A Settles, 990 ft. N and 2,310 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 2,129 ft.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. — Shut down 2,927 ft.

Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W, Sec. 45, Blk. 33 — Shut down 1,300 ft.

Moody Oil Corp.'s No. 29-B, Sec. 137, Blk. 29, 330 ft. from N and 1,650 ft. from W — Top pay 1,890-1,911 ft.

Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 — Shut down 261 ft.

Moody Oil Corp.'s No. 20-E Roberts, 1,650 ft. S, 2,310 ft. W of NE Sec. 136, Blk. 29, W.&N.W.R.R. Sur. — Spudding.

Plymouth Oil Co.'s No. 4 Abrams, 330 ft. from N and 1,650 ft. from W, Sec. 5, Blk. 32, Twp. 2s — Top pay 2,480 ft.; shut down 2,519 ft.; plugged back 2,505 ft.; pumped 20 bbls., 15 per cent water, in 24 hrs.; may shoot.

Plymouth Oil Co.'s No. 6 Abrams, Sec. 5, Blk. 32, Twp. 2s, 1,650 ft. from S, 330 ft. from W, T.&P. — Top pay 2,175 ft.; total depth 2,323 ft.; 350 ft. oil in hole.

Plymouth Oil Co.'s No. 7 Abrams, 2,310 ft. from N, 330 ft. from W, Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. — Top pay 2,200 ft.; total depth 2,257 ft.; 200 ft. oil in hole.

Pure Oil Co.'s No. 2 A. J. Hooks, 2,440 ft. N and 600 ft. E of SW cor. Sec. 140, Blk. 29, W.&N.W.R.R. Sur. — Shut down 1,700 ft.

Shell Pet. Corp.'s No. 2 Abrams, Sec. 13, Blk. 33, Twp. 2s, 2,310 ft. from S, 990 ft. from E, T.&P. — Top pay 2,135 ft.; pumped 1,025 bbls. 24 hrs. at total depth 2,180 ft.

Simms Oil Co.'s No. 2 Clay, 330 ft. from S, 2,310 ft. from W, Sec. 127, Blk. 29 — Location.

HUDSPETH COUNTY

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor., Sec. 19, Blk. E — Drlg. 2,850 ft.

George Richardson's No. 1 Paxton, 2,640 ft. from N and W, Sec. 9, Blk. 16 — Shut down 205 ft.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. — Shut down 2,760 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 — Shut down 3,155 ft.

IRION COUNTY

Banner's No. 2 Nutt, Subdivision 5, 150 ft. from N and E of W half Gonzales County School Lands — Plugged back 1,365 ft.; pumped oil and water.

Beesley's No. 1 Sawyer Cattle Co., 1,320 ft. N and E of SW cor. Sec. 3,032, Blk. 24, H.&T.C.R.R. Sur. — Location.

Brown & Fox's No. 2 Tankersley, 160 ft. from N and 500 ft. from E lines of S half of Sec. 712, F. Willig Sur. — Material.

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W, Subd. 8 — Shut down 1,105 ft.

Carl Cromwell's No. 1 Nutt, 150 ft. from N, 1,161 ft. from W. Subd. 6, Gonzales County School Land — Plugging back to 1,472 ft.; pumped 40 bbls. in 24 hrs.; plugged back from 1,480 to 1,472 ft.

Carl Cromwell's No. 1 Tankersley, 2,490 ft. from S and E, Sec. 1,219, T.C.R.R. Sur. — Shut down 375 ft.

Cromwell et al's No. 1 Fuller, 2,134 ft. N and 631 ft. W of SE cor., Sec. 81, Blk. 1, H.&T.C.R.R. Sur. — Drlg. 625 ft.

Dennys & Andrews' No. 1 Tankersley, 2,660 ft. from W, 600 ft. from S of Sec. 4, H. N. Wallace Sur. — Fishing 529 ft.

Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. — Show gas 7,856 ft.; set 4½-in. casing 7,550 ft.; drlg. 7,727 ft.

J. A. Starkweather's No. 1 Lindley, Sec. 1,160½ ,900 ft. from S, 150 ft. from E, H.&T.C. Sur. on E — Underreaming 10-in. casing 1,150 ft.

P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County — Fishing 4,760 ft.

JONES COUNTY

J. H. Adsit et al's No. 1 Swenson, C of NE of SE, Sec. 192, B.B.B.&C. Sur. — Shut down 2,508 ft.

Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW, Sec. 50, Blk. 18 — Rig.

Cranfill-Reynold's No. 1 Stevens, 990 ft. from N and 3,630 ft. from W of John McMullen Survey 337 — Underreaming 12-in. casing at 810 ft.

Mid-Tex Oil & Gas Co.'s No. 1 King — Shut down 1,520 ft.

Mid-Tex Oil & Gas Co.'s No. 1 Minter, 765 ft. from N and 607 ft. from E of 86-acre tract in NW cor. Sec. 41, Block 15, T.&P Sur. ..... Drlg. 1,535 ft.
Shabeen et al's No. 1 King ..... Underreaming 8-in. csg. 1,650 ft.

KENT COUNTY

White & Smith's No. 1 Pursley estate, 1,320 ft. from E and 2,640 ft. from S of Sec. 8, Blk. H, H.&T.B. ..... Fishing 300 ft.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 700 ft. from N and W line of F. Lotta Sur. ..... Shut down 800 ft.
McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. ..... Shut down 1,350 ft.

LOVING COUNTY

Humble Oil & Ref. Co.'s No. 1 Kloh, 2,640 ft. N and W Sec. 35, Blk. 55, Twp. 2, T.&P.R.R. Sur. ..... Drlg. 2,595 ft.
Independent O. & G. Co.'s No. 1 Wheat, 330 ft. each way from W cor. of Sec. 85, Blk. 1, W.&N.W. ..... Shut down 658 ft.
Lockhart Co.'s No. 3 Allen, 330 ft. from NE, 1,650 ft. from NW, Sec. 82, Blk. 33, H.&T.C. ..... Top salt 725 ft.; drlg. 2,915 ft.
Lockhart & Co.'s No. 4 Hubbard, 1,660 ft. NE, 330 ft. NW, Sec. 33, Blk. 33, H.&T.C. ..... Drlg. 3,825 ft.

LYNN COUNTY

Lubewell Oil Co.'s No. 1 May, 2,310 ft. S, 2,310 ft. W, Sec. 10, Blk. 7, E.L.R.R. ..... Shut down 190 ft. for casing.
George McCamey's No. 1 Edwards, 165 ft. N and E, Sec. 5, Blk. 2, L.S.&W. Sur. ..... Top salt 2,140 ft.; oil show 1,580-90 ft.; hole full sulphur water 4,730 ft.; set 6-in. casing 4,733 ft.; shut down 4,825 ft.

MENARD COUNTY

Cromwell & Duffey's No. 2 Winslow, 250 ft. S and E of NW cor. NE of NE Sec. 36, J. H. Gibson Sur. ..... Location.
I. C. Barnett's No. 2 Callan, Sec. 1, 1,050 ft. from S, 1,190 ft. W ..... Drlg. 750 ft.

MITCHELL COUNTY

Gibson & Johnson's No. 2 Scott, 150 ft. N and 2,490 ft. W of SE cor. Sec. 7, Blk. 19, Lavaca Navigation Co. ..... Spudded and shut down.
Seiger's No. 1 Scott, C of NE of SW, Sec. 36, Blk. 17, S.P.R.R. Sur. ..... Shut down 730 ft.
Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ..... Drlg. 4,380 ft.

NOLAN COUNTY

Gibson & Johnson's No. 1 Bond, 1,320 ft. from N and 1,980 ft. from E of Sec. 42, Blk. 20, T.&P. ..... Drlg. 2,070 ft.
Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW, Sec. 66, Blk. 23, T.&P. Sur. ..... Drlg. 4,337 ft.

PECOS COUNTY

Anna Bell Oil Co.'s No. 1 Hollingsworth, 150 ft. N and W of C Sec. 24, Blk. 11, H.&G.N.R.R. Sur. ..... Moving in material.
E. W. Bateman's No. 1 Belgrade Cattle Co., 330 ft. from S and W line of NE Sec. 34 Blk. 11 ..... Drlg. 550 ft.
Buell & Hagan's No. 1 Byrne, 990 ft. from N and 2,310 ft. from E of Sec. 54, Blk. 10, H.&G.N.R.R. Sur. .... Location.
California Co.'s No. 3 Smith, Lease No. 5, Sec. 16, Blk. 194, 337 ft. from S and 166 ft. from E, G.C. &S.F. Sur. ..... Top pay 1,815 ft.; total depth 1,832 ft.; top lime 1,828 ft.; shut down.
California Co.'s No. 6 Smith, Lease No. 1, 1,700 ft. N and 330 ft. W of SE cor. Sec. 37, Blk. 194, G.C. &S.F.R.R. Sur. ..... Rig.
California Co.'s No. 2 Tippett, 2,016 ft. from S and 1,040 ft. from E of Sec. 2, D.F. Robertson Sur. ..... Location.
Continental Oil Co.'s No. 2 University, 330 ft. S and 1,680 ft. E of NW cor. of Sec. 6, Blk. 17, University Land ..... Drlg. 65 ft.
Continental Oil Co.'s No. 3 University, 330 ft. S and 2,371 ft. E of NW cor. Sec. 6, Blk. 17, University Land ..... Drlg. 180 ft.
Continental Oil Co.'s No. 4 University, 330 ft. S and E of NW cor. of Sec. 6, Blk. 17, University ..... Top pay 960 ft.; total depth 970 ft.
Continental Oil Co.'s No. 6 University, 330 ft. S and 3,031 ft. E of NW cor. of Sec. 6, Blk. 17, University Land ..... Cellar.
Corzelius Bros. et al's No. 1 Cordova, 2,490 ft. from N and 1,515 ft. from W Sec. 29, Blk. 11, H.&G.N.R.R. Sur. ..... Drlg. 1,270 ft.
Crosby Prod. & Royalty's No. 3 Smith, 330 ft. from S and W line, Sec. 24, Blk. 194 ..... Location.
Cosden Oil Co.'s No. 1 McDonald, 350 ft. from N and E of Sec. 1, H.E.&W.T. ..... Shut down 225 ft.
Cranfill & Reynolds' No. 1 Masterson, SW cor. Sec. 104, Blk. 10 ..... Top pay at 1,249 ft.; second pay 1,268 ft.; shut down 1,440 ft.
Dixie Oil Co.'s No. 1 McKinzie, 3,300 ft. from N and 2,025 ft. from W of Sec. 15, Blk. 604, G.C.&S.F. ..... Moving in material.
Harrison & Cromwell's No. 1 White-Baker, 2,310 ft. from S and E, Sec. 42, Blk. 11, H.&G.N.R.R. Sur. .... Drlg. 625 ft.
Henshaw Oil Corp.'s No. 1 McDonald, 330 ft. from N and W of S 109 ac. of N 189 ac., Sec. 2, H.E.&W.T. .... Top salt 690 ft.; shut down 1,440 ft.
Humble Oil & Ref. Co.'s No. 1 Cunningham, C of SW Sec. 34, Blk. 11, H.&G.N.R.R. Sur. ..... Drlg. 550 ft.
Independent & Rowan & Tong's No. 2 McDonald, 153 ft. from W line and 170 ft. from N line of S half NE Sec. 46, Blk. 12 ..... Show of oil, gas and sulphur water 1,360-64 ft.; plugged and abandoned 1,662 ft.
Independent O. & G. Co.'s No. 1 Phelps, 150 ft. N and W of N half of NE Sec. 26, Blk. 11, H.&G.N.R.R. Sur. ..... Total depth 160 ft.; shut down.
Jayhawk Oil Co.'s No. 1 Price, 1,310 ft. from W, 330 ft. from S, Sec. 6, Blk. 12, H.&G.N.R.R. Sur. ..... Top salt 610 ft.; shut down 1,355 ft.
J. L. Kennedy's No. 1 Roberts, C of Sec. 78, Blk. 3, T.&P.R.R. Sur. ..... Drlg. 1,604 ft.
Sam Kitts et al's No. 1 Sherbino, 330 ft. from N and 990 ft. from W line, Sec. 52, Blk. C-4, G.C.&S.F.R.R. .. Top salt 976 ft.; drlg. 2,482 ft.; 2 bailers water per hour 2,444-48 ft.
Landreth Prod. Corp.'s No. 1 Cunningham, 235 ft. S and 275 ft. W of NE of S half of Sec. 32, Blk. 11, H.&G.N.R.R. ..... Drlg. 1,450 ft.
Landreth Prod. Corp. et al's No. 1 Smithpeter, 330 ft. N and 280 ft. W of SE cor. Sec. 31, Blk. 11, H.&G.N.R.R. Sur. ..... Gas show 1,360 ft.; fished out tools 1,665 ft.; rerunning pipe.
Landreth Prod. Co.'s No. 1-C University, 330 ft. from N and E, NW of SW of Sec. 31, Blk. 16 ..... Drlg. 903 ft.
Landreth Prod. Co.'s No. 1-D University, 990 ft. from S and 990 ft. from W of Sec. 31, Blk. 16..... Show gas 962 ft.; show oil 969 ft.; top pay 1,682 ft.; drlg. 1,693 ft.
Landreth & Dunning's No. 1 McDonald, 330 ft. N and E of SW cor. Sec. 40½, Blk. 12, H.&G.N.R.R. Sur. .... Fishing tools 1,465 ft.
Landreth Prod. & Henshaw Bros.' No. 1-E University, 330 ft. N and W of SE cor. W half NE Sec. 13, Blk. 18, University Land ..... Drlg. 365 ft.
Landreth Prod. & Henshaw Bros.' No. 2-E University, 330 ft. S and E of NW cor. of W half of NE Sec. 13, Blk. 18, University Land ..... Cellar.
Landreth Prod. Corp. et al's No. 1-F University, 330 ft. from S and E of NE of SW Sec. 31, Blk. 16 ..... Fishing 730 ft.
Landreth & Henshaw's No. 1 University-G, 330 ft. N and E of SW cor. Sec. 31, Blk. 16, University Land... Total depth 997 ft.; top pay 968 ft.; swabbing 48 bbls.
Landreth & Henshaw's No. 3 University-G, 330 ft. S and W of NE cor. of SE SW Sec. 31, Blk. 16 ..... Underreaming 12-in. casing 810 ft.
Landreth Prod. Corp. et al's No. 1-I University, 330 ft. from S and W of NE of NE Sec. 24, Blk. 18 ..... Drlg. 80 ft.
Landreth Prod. and Henshaw Bros.' No. 2-I University, 330 ft. S and W of NE Sec. 24, Blk. 18, University Land ..... Cellar.
Landreth Prod. & World Oil Co.'s No. 5-B University, 330 ft. N and W of SE NE Sec. 13, Blk. 18, University Land ..... Shut down 1,596 ft.
Landreth Prod. & World Oil Co.'s No. 6-B University, 990 ft. S and W of NE cor. of Sec. 13, Blk. 18, University Land ..... Location.
Seminole Oil Co.'s No. 1 Pecos Valley, Sec. 22, Blk. 10, 360 ft. from SW, 2,280 ft. from SE, H.&G.N. Sur. .... Location.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ..... Shut down 1,442 ft.
Mazda Oil Co.'s No. 1 Cordova Union Land Co., 2,310 ft. from N and 990 ft. from E of Sec. 103, Blk. 11, H.&G.N. ..... Spudded.
Merrick-Bristow's No. 1 Neville, 330 ft. from S and W, Sec. 42, Blk. 12, H.&G.N.R.R. Sur. ..... Top salt 645 ft.; shut down 1,670 ft.
R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. ..... Show oil 1,216 ft.; drlg. 1,325 ft.; hole full water 1,295 ft.
Moncrief's No. 1 Clarkson, Sec. 84, Blk. 12, H.&T.N.R.R. Sur., 2,310 ft. from N and W..... Top salt 860 ft.; total depth 1,832 ft.
Moncrief's No. 1 Sullivan, 150 ft. E of C of SW Sec. 58, Blk. 11, H.&G.N.R.R. Sur. ..... Location.
George Morgan's No. 2 Toborg, Sec. 539, Blk. 1, 150 ft. S of Moncrief's No. 1 ..... Show oil 1,208 ft.; total depth 1,285 ft.; plugged back to 1,284 ft.; flowing 3 bbls. daily.
Mid-Kansas Oil & Gas Co.'s No. 32 Yates-A, 225 ft. N of most southerly N line and 1,308 ft. E of most western E line, Sec. 32, Blk. 194, I. G. Yates Sur. A-3,195 ..... Drlg. 1,165 ft.
H. T. O'dneal's No. 1 Power, 2,640 ft. from N and 150 ft. from W, Sec. 1, Blk. 132, T.&St.L.R.R. Sur. .... Shut down 40 ft.; running 10-in. casing.
J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S, 150 ft. from E, G.C.&S.F. ..... Fishing 875 ft.
J. D. O'Mara's No. 1 Streety, C of Sec. 1, W. P. Howard Sur. ..... Drlg. 900 ft.
Phillips Pet. Corp.'s No. 3 Pryor, 365 ft. from N and 440 ft. from W of Sec. 78, Blk. OW, T.M.R.R.. Straightening hole 470 ft.
Phillips Pet. Co.'s No. 4 Ramsey, 2,722 ft. from N and 1,980 ft. from E of Sec. 17, Blk. 194, G.C.&S.F. ..... Drlg. 1,534 ft.
Rector Oil Co.'s No. 1 State Land, 330 ft. N and W of SE cor. Sec. 106, Blk. 8, H.&G.N.R.R. Sur. ..... Total depth 1,180 ft.
M. M. Rowan's No. 1 University, NE Sec. 25, Blk. 16.... Shut down 2,044 ft.
Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line, Sec. 1, Blk. 117, G.C.&S.F..... Drlg. 2,450 ft.
Shell Pet. Corp.'s No. 1 Owen et al, 330 ft. each way from E cor. Sec. 16, Blk. 5, H.&T.C..... Location.
Shell Pet. Corp.'s No. 1 Percival, 330 ft. from N and E of SE Sec. 199, Blk. 3, I.&G.N. ..... Location.
Sides & Cloyd's No. 2 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.&C.R.R. Sur. ..... Drlg. 350 ft.
Shell Pet. Corp.'s No. 2-C University Land, 330 ft. S and E of SW of NW Sec. 31, Blk. 16, University Land.... Show oil 1,352 ft.; top pay 1,639 ft.; shut down 1,647 ft.; flowed 169 bbls. first 24 hrs.; total depth 1,657 ft.; plugged back to 1,655 ft.; flowed 115 bbls. daily.
Shell Pet. Corp.'s No. 3-C University, 330 ft. N and W of SE of SW of NW Sec. 31, Blk. 16, University Land ..... 40,000,000 ft. gas 940-45 ft.; drlg. 1,547 ft.
Skelly Oil Co.'s No. 1 University, 330 ft. from S and W of N half SE Sec. 31, Blk. 16 ..... Drlg. 675 ft.
Taylor-Link's No. 5 University, 990 ft. from N and 330 ft. from W of Sec. 30, Blk. 16 ..... 30,000,000 ft. gas; shut down 1,475 ft., repairs.
Taylor-Link's No. 6 University, 330 ft. from N and 330 ft. from E of W half of SE, Sec. 13, Blk. 18 ..... Drlg. 835 f t.
Taylor-Link Oil Co.'s No. 8 University, 330 ft. N and 2,310 ft. W of SE cor. Sec. 31, Blk. 16, University Land ..... Drlg. 1,320 ft.
Taylor-Link Oil Co.'s No. 9 University, 990 ft. N and 2,310 ft. W of SE Sec. 31, Blk. 16, University Land.. Shut down 595 ft.
The Texas Company's No. 2 McDonald, 330 ft. N and 775 ft. W SE cor. SW Sec. 46, Blk. 12, H.&G.N.R.R. Sur. ..... Shut down for orders.
The Texas Company's No. 1 Graef, 2,329 ft. from N and 2,114 ft. from E of Sec. 44½, Blk. 12, H.&G.N.R.R. Sur. ..... Location.
Tower & McKanna's No. 1 University, Sec. 14, Blk. 16, 2,310 ft. from N and E ..... Drlg. by tools 2,049 ft.
Trees Oil Co.'s No. 3 Trees, 330 ft. from S and W of Sec. 90, Blk. 3, H.&G.N. ..... Moving in material.
World Oil Co.'s No. 1 University, 330 ft. from N and 2,310 ft. from E of Sec. 31, Blk. 16, University Land.. 6,000,000 ft. gas 1,630 ft.; total depth 1,665 ft.; top lime 1,630 ft.; 67 bbls. oil.
World Oil Co.'s No. 2 University, Sec. 31, Blk. 16, 330 ft. from N, 2,310 ft. E ..... Location.
Zoch et al's No. 1 Cordova Union Land Co., C of SW Sec. 31, Blk. 11, H.&G.N..... Drlg. 512 ft.

PRESIDIO COUNTY

L. C. Brite's No. 4 Brite, 271 ft. from N, 1,138 ft. from E. Sec. 245, Blk. 4 ..... Shut down 670 ft.
Eastland Oil Co.'s No. 1 Tootle, C Sec. 17, Blk. 1, D.P. R.R. Sur. ..... Spudded; shut down.
T. P. Coal & Oil Co.'s No. 1 Bogel, 330 ft. S and W, Sec. 33, Blk. 8, G.H.&S.A. ..... Underreaming 8-in. casing 2,640 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor., Sec. 1, Blk. 2, University Land.. Top pay 2,903 ft.; 1,000 ft. fluid in hole; top pay 6,807 ft.; drlg. 7,445 ft.
Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ..... Showing oil and gas at 8,220 ft.; flowed 303 bbls. in 24 hrs.
Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line, Sec. 8, J. G. Robinson Sur. ..... Location.
Texon Oil & Land Co.'s No. 2-B University, 4,655 ft. from S, 250 ft. from W Sec. 36, Blk. 9 ..... Shut down 97 ft.
Texon Oil & Land Co.'s No. 3-B University, 2,240 ft. from S, 920 ft. from W Sec. 36, Blk. 9 ..... Shut down 104 ft.
Thomas & Brann et al's No. 1 Hughes, C NE of Sec. 7, Blk. 1, T.C.R.R. Sur. ..... Drlg. 625 ft.

REEVES COUNTY

Mac Best et al's No. 1 McKinney, 400 ft. from N line, 1,030 ft. from E line, Sec. 26, Blk. C-18 ..... Drlg. 556 ft.
Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Shut down 2,990 ft.
H. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. ..... Spudded and shut down.
Black & Fink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 59 ..... Shut down 500 ft.
Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor., Sec. 22, Blk. 51 ..... Shut down 5,001 ft.
David R. Thompson's No. 1 A. A. Eddins, Sec. 9, Blk. C-1 ..... Drlg. by casing 5,490 ft.

RUNNELS COUNTY

Gibson & Johnson's No. 1 Johnson, 2,310 ft. N and 1,650 ft. W of SE cor., Sec. 150, E.T.R.R. Sur. ..... Spudding.

Gibson & Johnson's No. 2 Serratt, 2,310 ft. from S and 1,650 ft. from E of Sec. 150, E.T.R.R. Sur. ..... Spudding.
Gibson-Johnson's No. 1 Woods, Sec. 529, 2,600 ft. from S and 300 ft. from E, T. T. Williams Sur. ..... Drlg. 2,250 ft.
H. D. Hamilton's No. 1 Spill, Sec. 358, 1,230 ft. from N, 1,320 ft. W of Creek, Thos. Webb Sur. ..... Shut down 100 ft.
H. E. Lamar's No. 1 Long, 2,310 ft. N, 6,900 ft. E Sec. 262 ..... Shut down 1,375 ft.
McLean's No. 1 Clayton, 150 ft. from N line, 270 ft. from W line of Sec. 133 ..... Shut down 1,185 ft.
Summer et al's No. 1 Reese, 600 ft. S, 720 ft. W Sec. 26, SE cor. ..... Shut down 1,650 ft.
Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor., Lot 22, Domingo Diaz Sur., No. 532.. Location.

SCHLEICHER COUNTY

Fort McKavet's No. 1 Tisdale, Sec. 1,499, River Section, 3,630 ft. from S, 150 ft. from W ..... Set 6-in. casing 3,023 ft.; shut down 3,500 ft.
Interstate's No. 1 Whitten, 1,320 ft. from N and W, Sec. 35, Blk. LL, T.C.R.R. Sur. ..... Hole slopped over with oil at 4,925 ft.; made one good flow; set 6-in. casing 5,050 ft.; total depth 5,565 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A.R.R. ..... Drlg. 135 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 330 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. ..... Shut down 1,732 ft.
Camp Spring Oil & Ref. Co.'s No. 3 Guinn, 1,300 ft. from S, 300 ft. from E, Sec. 12, Blk. 3, H.&T.C.R.R. Sur ..... Swedging casing 2,680 ft.
Cottingham & Briscoe's No 1 Trees, C SE Sec. 147, Blk. 97 ..... Drlg. 3,230 ft.
I. B. Mimms et al's No. 1 J. J. Koonsman' Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down 300 ft.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Drlg. up lugs 4,065 ft.
E. L. Smith Oil Co.'s No. 1 Moore, 1,320 ft. from S and W Sec. 379, Blk. 97 ..... Rigging up.

STERLING COUNTY

Sherwood B. Owen's No. 1 Tweedle, 1,980 ft. from N and 1,320 ft. from E of Sec. 10, Blk. T, T.&P. ..... Shut down 355 ft.

SUTTON COUNTY

Independent Oil & Gas Co.'s No. 1 Willson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ..... Spudded and shut down.
Independent & Sun Oil Co.'s No. 1 Allison, Sec. 39, Blk. A, 200 ft. from N and 1,000 ft. from W ..... Drlg. 3,330 ft.
Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor., Sec. 25, G.C.S.D.&N.G.R.R. Sur.... Fishing 6,635 ft.; making 1,500,000 ft. gas 6,635 ft.
L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor., Sec. 52, Blk. A, T.&P. Sur. ..... Show oil 3,625 ft.; increase at 3,690 ft.; total depth 4,020 ft.

TAYLOR COUNTY

Adams and others' No. 1 Lowe, 150 ft. from N and W of Sec. 19, League 120, Guadalupe Sur. ..... Drlg. 650 ft.
Condor Pet. Co.'s No. 1 Allen, C of NW Sec. 220, Blk. 64, H.T.C.R.R. Sur. ..... Location.
John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ..... Show oil 4,917 ft.; shut down 5,000 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.K.&T.R.R. Sur. ..... Shut down 1,150 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 2,915 ft.
Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 75, Blk. D-7, E.L.R.R. Sur. ..... Shut down 880 ft.
Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ..... Running 5-in. casing 5,400 ft.
Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F.R.R.... Material.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 625 ft.

TERRY COUNTY

Kingsland, O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Cannon et al's No. 1 Rust, 990 ft. S, 990 ft. W of NE cor. of Sec. 745 ..... Rig.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ..... Shut down 2,430 ft.
Fuhrman Pet. Co.'s No. 1 Wardlaw, 2,650 ft. from N and E of Sec. 6, Blk. 17, H.&T.C. ..... Drlg. 610 ft.

UPTON COUNTY

Gulf Prod. Co.'s No. 3-B Hughes, 160 ft. N and 161 ft. W of most southerly SE cor. of their 200-acre lease "B" out of Wm. Teen Sur. ..... Location.
Pure Oil Co.'s No. 3 Hughes, 150 ft. S and 767 ft. E of NW of their 300-ac., Sec. 4, Wm. Teer Sur. ..... Drlg. 610 ft.
Texas Pacific C. & O. Co.'s No. 14-A Lane, 990 ft. N and 2,310 ft. W SE cor. Sec. 5, G.C.&S.F. ..... Location.
Texas Pacific Coal & Oil Co.'s No. 15-A Lane, 330 ft. N and 1,650 ft. W of SE cor. Sec. 5, G.C.&S.F.R.R. Sur... Drlg. 2,045 ft.; 1,500 ft. oil in hole.
Texon-Continental's No. 2 Sherk, 430 ft. from N line, 330 ft. from W line, Sec. 35, Blk. 1 ..... Location.
T. & P. Coal & Oil Co.'s No. 1 Reese, 330 ft. from N and E line, Sec. 2, Blk. 3 ..... Location.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,850 ft.
O. O. Owens, No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,700 ft. gas; reset 8-in. 2,511 ft.; reaming; total depth 4,250 ft.
Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line Sec. 44, Blk. D-8, E.L.&R.R. Sur... Shut down 1,185 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE, Sec. 47, Blk. Y.. Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 4,009 ft.

WARD COUNTY

Atlantic et al's No. 1 Dorr, 1,730 ft. S, 990 ft. W, Sec. 2, J. Howe ..... Total depth 145 ft.; fishing 15-in casing; shut down.
Atlantic Oil and Delmar Oil Co.'s No. 4 Hayzlett, 2,490 ft. SE NW and 1,470 ft. NE of SW line Sec. 17, Blk. 5, H.&T.C.R.R. Sur. ..... Shut down 2,500 ft.; top pay 2,455 ft.; shot twice; flowed 87 bbls. oil after shots.
Atlantic Oil and Delmar Oil Co.'s No. 5 Hayzlett, 2,420 ft. SW of NE line, 2,050 ft. NW SE of Sec. 17, Blk. 5, H.&T.C.R.R. ..... Top salt 755 ft.; drlg. 2,260 ft.
Continental Oil Co.'s No. 2 Sealey, 330 ft. S and W, Sec. 81, Blk. A, G.M.M.&A. Sur. ..... Top brown lime 2,280 ft.; oil pay 3,135 ft.; second oil pay 3,210-15 ft.; increase 3,230 ft.; total depth 3,358 ft.; plugged back 3,250 ft.; 1 bailer oil and 3 bailers water per hour; shot 150 qts. 3,210-35 ft.; 900 ft. fluid in 12 hrs.; to shoot again.
Gulf Prod. Co.'s No. 2 Hutchins, 330 ft. N and E, Sec. 7, Blk. O ..... Top salt 1,240 ft.; top pay 2,529 ft.; total depth 3,012 ft., lime shells and sand; flowed 190 bbls. daily.
Gulf Prod. Co.'s No. 7 O'Brien, 330 ft. S and W Sec. 22, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 2,133 ft., hard anhydrite.
Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW Sec. 18, Blk. 5, H.&T.C. ..... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-27 ft.; total depth 2,545 ft.; shut down for orders.
L. C. Harrison et al's No. 1 Wristen, 990 ft. from S and W lines of Sec. 26, Blk. B-28 ..... Top salt 700 ft.; total depth 2,285 ft.
J. H. L. Oil Co.'s No. 3 Hayzlett, 220 ft. N and W Sec. 17, Blk. 5, H.&T.C. ..... Rig.
E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Underreaming 8¼-in. casing; total depth 1,280 ft.
Penn & Atlantic's No. 2 Bennett, 2,310 ft. S line, 1,650 ft. W line, Sec. 16, Blk. 34, H.&T.C.R.R. Sur. ..... Machine.
Penn & Atlantic's No. 1 Cooper, 330 ft. from NE and 990 ft. from NW of Sec. 43, Blk. 34, H.&T.C... Cellar.
Shell Pet. Corp.'s No. 1 Owen et al, 220 ft. NW of SE line, 220 ft. SW of NE line, Sec. 16, Blk. 5, H.&T.C... Top salt 775 ft.; show oil and gas 2,485 ft.; shut down 2,690 ft.; one-half boiler oil; shut down 2,909 ft. for orders.
Shipley's No. 3 Hayzlett, 2,490 ft. S, 1,470 ft. W Sec. 17, Blk. 5 ..... Top salt 725 ft.; 2 bbls. oil 2,489-2,500 ft. sandy lime; shut down 2,500 ft.
Shipley et al's No. 4 Hayzlett, 2,050 ft. NW of SE and 2,420 ft. NE of SW line of Sec. 17, Blk. 5, H.&T.C. R.R. Sur. ..... Top salt 720 ft.; shut down 2,546 ft.; plugged back 2,538 ft.
Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 is N and S 220 ft. S and 1,910 ft. W Sec. 17, Blk. 5 ..... Plugged back from 2,546 ft. to 2,538 ft.; shot 90 qts. 2,473-93 ft.; no results.
Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk. 1 ..... Shut down 566 ft. for 10-in. casing.
Sun Oil Co.'s No. 1 Sealy, 330 ft. from N and E of Sec. 88, Blk. F, G.M.M.B.&A. Sur. ..... Rig.
Sun Oil Co.'s No. 2 Sealy, 2,310 ft. from N and 330 ft. from W of Sec. 52, Blk. F, G.M.M.B.&A. Sur. ..... Rig.

WINKLER COUNTY

V. T. Bolin's No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Top salt 1,300 ft.; shut down 2,832 ft.
Bashara et al's No. 2 Bashara, 990 ft. from S, 2,310 ft. from E, Sec. 17, Blk B-3, Public School Land ..... Derrick.
Cinderella Syndicate's No. 1 Hendricks, 330 ft. N, 1,650 ft. W Sec. 42, Blk. 26, Public School Land.... Total depth 150 ft.; building rig.
Gulf Prod. Co.'s No. 3-B Lum Daugherty, 2,310 ft. from N and 1,320 ft. W Sec. 22, Blk. 26, P.S.L. ..... Top lime 2,495 ft.; show oil 2,680-85 ft.; pay 2,698-2,700 ft.; flow 50 bbls. hourly, 88 per cent water; fishing; total depth 3,111 ft.; hole full water 3,020-25 ft.
Humble O. & R. Co.'s No. 1-D Hendricks, 330 ft. from S, 2,310 ft. from W of Sec. 41, Blk. 26 ..... Top lime 2,770 ft.; drlg. 2,824 ft.; top pay 2,812 ft.
Humble Oil & Ref. Co.'s No. 2 Walton, 2,310 ft. from N and W of Sec. 47, Blk. 26 ..... Derrick.
Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Top brown lime 2,510 ft.; shut down 3,100 ft.
Southern Crude O. P. Co.'s No. 4 Hendricks T-90, 2,310 ft. S and E of Sec. 47, Blk. 26 ..... Top lime 2,242 ft.; top pay 2,810-17 ft.; 18,000,000 ft. gas 2,401-04 ft.; mixing mud to kill gas; estimated 25,000,000 ft. gas; oil show 2,575-78 ft.; total depth 3,005 ft.

OKLAHOMA FIELDS

(Continued from Page 86)

Company, farm—	Location	Wells	Prod.
Cosar, M.	25-8-6	1	226
Milsey	11-7-6	2	270
Empire:			
Charty	24-7-6	1	21
Coker	13-7-6	2	343
Cotcha	27-7-6	2	12
Sandlin	3-7-6	1	10
Gypsy:			
Brown, C.	33-8-6	1	201
Brown, M.	33-8-6	1	325
Campbell	36-8-6	1	7
Conard	22-7-6	2	188
Cosar, W.	36-8-6	2	34
Cotcha	23-7-6	13	1,264
Denmark	11-7-6	3	557
Hulhoke	14-7-6	10	961
Mungee	1-7-6	1	Off
Patty	36-8-6	4	193
Renton	11-7-6	4	1,309
Willie	24-7-6	1	731
Independent:			
Carpenter	27-7-6	3	297
Davis, R.	13-7-6	7	779
Tewee	14-7-6	6	784
Williams	15-7-6	1	377
Harris	23-7-6	13	1,567
Independent et al:			
Davis	2-7-6	5	1,159
Reed	26-7-6	1	5
I.T.I.O.:			
Campbell	1-7-6	1	223
Dungan	35-8-6	3	97
House, M. A.	1-7-6	1	18
House, W. E.	1-7-6	1	12
House, W. E. "B"	2-7-6	4	538
Hull	22-8-6	2	377
Jackson	1-7-6	3	204
McCulla	1-7-6	2	601
Nitey	2-7-6	5	101
Phoebe, "A"	35-8-6	1	14
Phoebe, "B"	35-8-6	2	119
Soketeche	1-7-6	3	97
Magnolia:			
Cruse	33-7-6	4	583
Denby	11-7-6	4	171
Harjo, "A"	14-7-6	2	111
Harjo, "B"	14-7-6	2	137
Patty	35-8-6	4	51
Reed	22-7-6	3	327
Mid-Continent:			
Bruner	11-7-6	4	101
Aleck	23-7-6	1	13
Wadsworth	36-8-7	4	37
Pine:			
Bean	13-7-6	1	20
Hoyecha	26-8-6	7	1,107
Pine-Phillips:			
Patty	33-8-6	1	39
Prairie:			
Chilcoat	25-8-6	3	326
Coker	1-7-6	2	345
Gibson	14-7-6	5	759
Harris	14-7-6	4	621
House	2-7-6	4	81
Reed	13-7-6	2	506
Talley	14-7-6	5	806
Williams	15-7-6	2	177
Wood	26-7-6	3	119
Prairie-Amerada:			
Sunny	14-7-6	5	939
Prairie-Slick:			
Cudjo	26-7-6	4	457
Producers & Refiners:			
Davis	13-7-6	1	879
Dungan	36-8-6	1	...
Johnson	24-7-6	2	752
Moppin	24-7-6	2	151
Pure:			
Brinson	24-7-6	3	828
Cotcha	23-7-6	11	2,252
Harjo	11-7-6	4	1,101
Hollins	11-7-6	1	281
Reiter-Foster:			
Bunyard	14-7-6	2	435
Ritter	31-7-6	1	12
Shaffer:			
McCan	33-7-6	1	27
Narcome	26-7-6	2	25
Shell:			
Caesar	11-7-6	1	75
Glass	26-7-6	1	8
Hotulka	23-7-6	5	871
Johnson	13-7-6	4	474
Sinclair:			
Blanton	11-7-6	1	248
Cosar	36-8-6	3	421
Haney	12-7-6	1	73
Tewee	14-7-6	2	840
Pompey	24-7-6	1	230
Skelly:			
Carl	14-7-6	2	104
Snowden-McSweeny:			
Tiger	13-7-6	2	38
Superior:			
Potulka	31-8-6	1	3
Texas:			
Brooks	25-8-6	1	7
Coker	1-7-6	3	13
Janey	11-7-6	7	662
Texas-Independen.:			
Hotulka	23-7-6	7	883
Hotulka, H.	22-7-6	2	211
Tidal:			
House	1-7-6	1	131
Johnson	1-7-6	1	15
Twin State:			
Lowe	25-8-6	1	24
Total		346	47,089

East Little River Pool

Continental et al:			
Harrison	4-7-7	5	1,593
Gypsy:			
Payne	5-7-7	6	2,975

"A Plug THAT STAYS PLUGGED"

Thank Heaven

NOW and then it is a matter of life and death that a thing shall be done right. More often it saves only time, temper and money. The latter is just as important in its place, however, and that is why operators, in calling the Guiberson Bottom Water Plug *a plug that stays plugged,* most always add, "Thank Heaven!"

The Guiberson Bottom Water Plug definitely plugs off all bottom water—everything that threatens the well from below. When collapsed into place, steel spirals take a screw-like grip in the walls of the well, so firm that gas pressure cannot budge it. Oakum packing, which will outlast the well, presses into every fissure and crevice, preventing even the slightest passage of water. Put in a Guiberson Plug and know that *there* is the *bottom* of your hole. Fully patented.

"Better Be Safe Than Sorry"

THE GUIBERSON CORP.
Box 1106, Dallas, Texas
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621 Kennedy Bldg., Tulsa
321 S. Osage St., Ponca City
506 Trust Bldg., Newark, O.

GUIBERSON

BETTER BE SAFE THAN SORRY

Company, farm—	Location	Wells	Prod.
Walker	5-7-7	1	630
Magnolia:			
Reed	31-8-7	1	14
Wolf	20-8-7	1	39
McCulloch et al:			
Harrison	4-7-7	1	Off
Mid-Continent:			
Smith	5-7-7	13	6,403
Prairie:			
Smith	5-7-7	1	640
Prairie-Slick:			
Carr	9-7-7	1	118
Producers & Refiners:			
Lusty	5-7-7	1	13
Sakteke	9-7-7	1	37
Thomas	5-7-7	2	700
Sinclair:			
Phillips	5-7-7	7	8,205
Texas:			
Chilcoat	4-7-7	1	752
Total		42	22,119

Carr City Pool

Amerada:			
Reed	13-8-5	1	1
Barnsdall:			
Coker	11-8-5	9	1,348
Fife	14-8-5	2	121
Barnsdall et al:			
Tulley	10-8-5	1	88
Carter:			
Coker	2-8-5	2	1,226
Rogers	2-8-5	1	2,276
Empire:			
Cluck	11-8-5	13	2,182
Gypsy:			
Coker	10-8-5	1	Off
Coker, C.	2-8-5	1	852
Fife	14-8-5	1	12
I.T.I.O.:			
Simpson	10-8-5	1	Off
Tulley	10-8-5	1	8
Magnolia:			
Fee	11-8-5	3	244
Killings	14-8-5	1	2
Prairie:			
Billington	11-8-5	10	829
Mitchell	15-8-5	1	61
Sinclair:			
Bean	11-8-5	5	663
Harjo, L.	11-8-5	4	508
Total		58	10,421

Maud Pool

Amerada:			
Ballard	1-8-4	1	45
Fehlig	7-8-5	1	39
Gossland	8-8-5	3	64
Gravel	1-8-4	1	11
Hallum	1-8-4	4	1,360
Smith	8-8-5	1	562
Amerada-Barnsdall:			
Wallace	17-8-5	4	212
Amerada-Hull:			
Green	20-8-5	3	74
Continental-Shell:			
Everett	18-8-5	2	26
Empire:			
Smith	8-8-5	2	463
Gypsy:			
Bourassa	7-8-5	4	61
Gossland	9-8-5	2	1,199
Miller	18-8-5	8	250
Independent:			
Harding	18-8-5	4	130
I.T.I.O.:			
State Land	16-8-5	1	61
Laurel O. & G.:			
Billington	18-8-5	3	135
Magnolia:			
Billington	1-8-5	4	61
Green	20-8-5	3	63
Magnolia-Gypsy:			
Smith	20-8-5	1	46
McMan:			
Roberts	9-8-5	1	345
Mid-Continent:			
Shelton	18-8-5	3	25
Phillips:			
Hudson	19-8-5	3	101
Wallace	7-8-5	2	32
Pine:			
Lingerfelt	18-8-5	2	160
Smith	8-8-5	2	250
Prairie:			
Campbell	18-8-5	8	96
Jordan	9-8-5	1	90
Prairie et al:			
Villines	20-8-5	1	2
Pure:			
Lindley	18-8-5	8	273
Urbanskey	19-8-5	2	35
Wiley	8-8-5	4	675
Shell:			
Jordon	9-8-5	2	682
Sinclair:			
Bellars	19-8-5	10	320
Calvin	7-8-5	3	120
Lewis	6-8-5	2	40
Smith	9-8-5	1	320
Skelly-Lenox:			
Green	20-8-5	1	115
Skelly-Margay:			
Lingerfelt	18-8-5	4	120
Texas:			
Calvin	7-8-5	9	163
Tidal:			
Dunn	12-8-4	1	37
Everetts	18-8-5	2	41
Smith	8-8-5	1	51
Twin State:			
Colvin	7-8-5	2	65
Wilcox O. & G.:			
Smith	8-8-5	8	789
Total		135	9,818

Mission Pool

Amerada:			
Rice	5-8-6	2	353
Carter:			
Fuswa	18-8-6	3	501
Micco	8-8-6	2	133
Carter-Denver P. & R.:			
Melissa	9-8-6	1	404
Continental:			
Maines	7-8-6	4	769
Darby:			
Judy	1-8-5	1	51

Company, farm—	Location	Wells	Prod.
Gypsy:			
Baby	6-8-6	1	14
Barkus, N.	6-8-6	10	2,156
Barkus, S.	7-8-6	1	13
Dosar	7-8-6	5	518
Hardy	7-8-6	5	296
Harjoche	7-8-6	3	35
Micco, L.	8-8-6	2	28
Mission	5-8-6	7	905
Mosar	1-8-5	4	476
Independent:			
Lawson	1-8-5	5	754
Independent-Kistler:			
Payne	7-8-6	3	966
McMahon:			
Harjo	7-8-6	2	694
Mid-Continent:			
Ripley	13-8-5	1	101
Minnehoma:			
Neal	7-8-6	4	486
Pine, W. B.:			
Harjo	6-8-6	3	1,003
Micco	8-8-6	1	24
Prairie:			
Crain	7-8-6	1	58
Melton	6-8-6	3	685
Micco	5-8-6	1	5
Townsend	6-8-6	2	422
Prairie-Gypsy:			
Owens	18-8-6	2	94
Prairie-Slick:			
Nelly	12-8-5	1	138
Shaffer:			
Weaver	12-8-5	3	827
Shell-Continent:			
Hearndon	7-8-6	3	512
Shell-Papoose:			
Maines	7-8-6	8	566
Sinclair:			
Hardy	7-8-6	4	435
Judy	1-8-5	1	25
Tidal:			
Nellie	12-8-5	5	1,349
Twin State:			
Hayes	8-8-6	2	939
Judy	6-8-6	2	164
Ripley	12-8-5	2	12
Total		110	16,913

Bowlegs Pool

Amerada:			
Rascoe	15-8-6	6	478
Atlantic:			
Baker	10-8-6	4	215
Fleet	23-8-6	3	100
Grayson	13-8-6	3	451
Jones "A"	16-8-6	2	14
Jones "C"	9-8-6	1	15
Barnsdall:			
McNac	28-8-6	1	17
Morrow	11-8-6	4	225
Carter:			
Bowlegs, I.	15-8-6	4	254
Burden	23-8-6	2	190
Harjoche	14-8-6	6	361
Hilly, D.	23-8-6	3	185
Jones	11-8-6	4	363
Walker	15-8-6	4	314
Wise	23-8-6	11	1,023
Dixie:			
Lizzy	11-8-6	1	12
Empire:			
Lacey	14-8-6	6	176
Wise	23-8-6	2	106
Gypsy:			
Cumsey	10-8-6	4	352
Grayson	13-8-6	4	348
Harjoche	10-8-6	3	143
Jones	11-8-6	1	37
Walker	15-8-6	7	686
Wise	23-8-6	2	48
I.T.I.O.:			
Barnett	24-8-6	1	45
Barnett "B"	23-8-6	1	12
Billington	22-8-6	3	249
Bowlegs	22-8-6	9	861
Davis	13-8-6	4	40
Fay	13-8-6	9	813
Goforth	15-8-6	12	1,090
Livingston	15-8-6	10	1,222
Lizzie	11-8-6	3	326
Walker	15-8-6	8	805
Williams	12-8-6	1	202
Wilmot	15-8-6	4	269
Work	24-8-6	1	49
Youngblood	24-8-6	1	21
Magnolia:			
Davis, B. F.	13-8-6	3	244
Davis, M.	13-8-6	1	68
Hammond	10-8-6	8	287
Rhodes	12-8-6	5	283
Vanbuskirk	9-8-6	4	201
McCulloch:			
Bowlegs	22-8-6	1	16
Mid-Continent:			
Baker	10-8-6	4	153
Smith	12-8-6	6	426
Minnehoma:			
Bowlegs	15-8-6	1	18
Prairie:			
Gahagan	23-8-6	3	201
Harber	10-8-6	8	712
Jones, G.	11-8-6	3	282
Jones, N.	3-8-6	1	144
Templeton	12-8-6	4	1,487
Whitney	23-8-6	4	300
Pure:			
Reed	14-8-6	14	1,693
Strothers "D"	14-8-6	4	276
Strothers "F"	10-8-6	7	1,315
Shaffer:			
Lacey	14-8-6	3	406
Shell-Houston:			
Taylor	16-8-6	5	7
Sinclair:			
Cumsey	10-8-6	4	771
Ellen	11-8-6	5	484
Harjo	14-8-6	3	294
Jones	9-8-6	7	170
Taylor, M.	10-8-6	4	508
Taylor, W.	10-8-6	3	514
Walker, I.	22-8-6	4	684
Texas:			
Reed	14-8-6	11	505
Tidal:			
Grayson	13-8-6	4	393
Harjoche	10-8-6	6	1,026
Total		295	25,995

Earlsboro Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Anderson	15-9-5	1	215
Cowden	4-9-5	7	952
Rogers	3-9-5	2	106
Atlantic-Sinclair:			
Foreman	18-9-5	1	100
Barnsdall:			
Brown	10-9-5	3	865
Bruner, F.	2-9-5	2	128
Bruner, N.	10-9-5	1	184
Cudjo	14-9-5	1	17
Davis, D.	11-9-5	3	68
Davis, J.	11-9-5	4	927
Davis, M.	11-9-5	2	19
Gibson	9-9-5	7	551
Hern	15-9-5	1	1
Ingram, J.	1-9-5	6	229
Pack, S.	10-9-5	4	58
Peter	10-9-5	3	46
Sango	1-9-5	2	322
Sobolka	15-9-5	1	89
Sullivan	15-9-5	1	4
Sull-Harjo	10-9-5	2	12
Wasutka	12-9-5	3	406
Burke-Greis:			
Wisener	6-9-6	2	164
Burke-Greis-Red Bank:			
Mayes	1-9-5	3	1,225
Carter:			
Cox	31-10-6	1	90
Davis, S.	13-9-5	3	55
Gilliam	13-9-5	2	917
James, A.	6-9-6	3	874
Shepherd	6-9-6	2	321
Continental:			
Kays	2-9-5	2	63
Spencer	12-9-5	4	483
Cosden:			
Anderson	13-9-5	2	1,171
Sarber	13-9-5	1	37
Empire:			
Barker	12-9-5	1	18
Edmundson	3-9-5	2	25
Empire-Amerada:			
Bullock, W.	8-9-5	2	521
Henry	8-9-5	1	1,237
Empire-Continental:			
Anderson	13-9-5	2	279
Empire-Gypsy:			
Keys	6-9-5	1	28
Gypsy:			
Bruner	10-9-5	4	455
Carter, B.	11-9-5	7	1,490
Earl	16-9-5	1	13
Hunick	5-9-5	2	1,087
Noble	12-9-5	3	399
Peter	10-9-5	1	49
Sango	1-9-5	11	1,641
State	16-9-5	2	176
Wisener	13-9-5	1	156
Independent:			
Bruner	10-9-5	3	112
Sullivan	10-9-5	1	10
Independent-Darby:			
Knapp	8-9-5	2	552
Independent-Margay:			
Gaines	11-9-5	3	73
Magnolia:			
Bryant	9-9-5	5	27
Cowden	4-9-5	1	12
Dixon	12-9-5	1	13
Edmundson	3-9-5	1	3
Germany, M.	30-9-5	1	6
Gilliam	13-9-5	3	1,205
Homsley	11-9-5	6	5
Hyde	13-9-5	2	15
Ingram	10-9-5	1	14
Lena	10-9-5	3	28
Seay	12-9-6	9	160
Simpson	10-9-5	4	188
Sparks	11-9-5	6	86
Sullivan	12-9-5	2	128
Mid-Continent:			
McKinley	9-9-5	3	20
Rogers	5-9-5	5	1,265
Mid-Kansas:			
Anderson	14-9-5	1	28
Phillips:			
Dunaway	14-9-5	1	17
Reade	8-9-5	2	1,100
Prairie:			
Davis	13-9-5	3	394
Graham, C.	3-9-5	1	4
Graham, O.	10-9-5	4	601
Stidham	11-9-5	9	173
Prairie-Skelly:			
Campbell	6-9-6	7	1,843
Prairie-Whitney:			
Harjo	24-9-5	1	1
Shaffer:			
Clark	1-9-5	2	182
Shell:			
Bayless	17-9-5	1	11
Hearn	13-9-5	1	2
Spencer	12-9-5	2	775
Sinclair:			
Alexander	36-10-5	1	579
Foreman	18-9-5	1	12
Sango	2-9-5	4	242
Skelly:			
Mayes	1-9-5	4	245
Sheppard	6-9-6	4	1,436
Spencer	12-9-5	1	135
Skelly-Atlantic:			
Cherry	6-9-6	4	171
Lottie	6-9-6	3	204
Skelly-Prairie:			
Varnum	5-9-6	2	491
Superior:			
Ingram	1-9-5	2	815
Songster	8-9-5	2	1,106
Walker	2-9-5	2	999
Superior-Shaffer:			
McKey	36-10-5	1	307
Texas:			
Anderson	2-9-5	8	82
Brown	10-9-5	8	75
James	6-9-6	2	131
Rogers	5-9-5	5	361
Wilmot	10-9-5	6	76
Tidal:			
Walker	35-10-5	2	1,092
Watkins	9-9-5	7	1,233
Twin State:			
Anderson	22-9-5	1	5
Barker	12-9-5	2	40
Hearn	2-9-5	2	50

Company, farm—	Location	Wells	Prod.
Magruder	7-9-5	1	509
Total		295	37,714

East Earlsboro Pool

Amerada:			
Sullivan	17-9-6	2	1,661
Barnsdall:			
Gilliam	13-9-5	1	97
Noble	18-9-6	3	658
Burke-Greis-Red Bank:			
Jones	17-9-6	1	1,154
Carter:			
Wrightsman	19-9-6	1	2,170
Gypsy:			
Noble, B.	18-9-6	2	1,832
Gypsy-Devonian:			
Payne	18-9-6	7	6,187
Magnolia:			
Anderson, A.	18-9-6	10	3,126
Anderson, D. W.	18-9-6	4	1,746
Anderson, P.	18-9-6	1	389
Moore	24-9-5	2	498
Mid-Continent:			
McDaniels	7-9-6	1	159
Minnehoma:			
Noe	17-9-6	1	1,628
Prairie:			
Baker	24-9-5	5	767
Calkins	17-9-6	2	1,941
Raitman	18-9-6	3	1,925
Wisner	18-9-6	1	103
Sinclair:			
Miller	24-9-5	1	380
Total		48	26,421

Seminole Pool

Amerada:			
Fixico	23-9-6	2	57
Killings	23-9-6	4	249
Rentie	23-9-6	3	312
Atlantic:			
Cudjo	35-9-6	3	332
Barnsdall:			
Carter	24-9-6	6	149
Henry	14-9-6	2	333
Jones	34-9-6	4	371
Carter:			
Carter, B.	24-9-6	2	27
Carter, F.	23-9-6	3	92
Creamer	34-9-6	1	7
Cudjo, R.	35-9-6	4	71
Cudjo, W.	34-9-6	1	61
Gilliland	27-9-6	1	95
Grisso	23-9-6	4	74
Grisso, M.	13-9-6	1	181
Killing, G. F.	14-9-6	4	40
Killing, M. E.	23-9-6	12	3,235
Knapp	13-9-6	1	28
Lukes	27-9-6	5	745
Pounder	34-9-6	2	135
Simpson	35-9-6	2	103
Strothers	34-9-6	4	312
Vierson	34-9-6	1	72
Carter et al:			
Sanford, C.	16-9-6	1	171
Wisner, C.	16-9-6	1	72
Darby:			
Carter, J.	24-9-6	4	170
Fixico	26-9-6	7	1,254
Harjo, D.	25-9-6	1	26
Harjo, T.	23-9-6	3	45
Empire:			
Gross	23-9-6	1	41
Wilson	34-9-6	2	171
Gypsy:			
Butler	35-9-6	4	420
Carter	34-9-6	8	692
Cudjo, T.	34-9-6	4	617
Fixico	26-9-6	7	52
Harjo	26-9-6	3	352
Wolfe	26-9-6	4	604
Independent:			
Fixico, P.	23-9-6	3	413
Harjo	25-9-6	2	20
Butler	35-9-6	3	421
Independent-Garland:			
Fixico, T.	23-9-6	5	148
Independent-Inter-Ocean:			
Jones	26-9-6	4	306
I.T.I.O.:			
Allen	26-9-6	2	26
Bowlegs	26-9-6	12	1,475
Goodin	23-9-6	3	154
Harjo	23-9-6	3	32
James	23-9-6	2	32
Reed	23-9-6	1	6
Kingwood-Shell:			
Harjo	22-9-6	3	329
Magnolia:			
Boren	2-8-6	1	2
Franks	25-9-6	3	179
Mid-Continent:			
Rentie	14-9-6	9	290
Tayeche	24-9-6	5	120
Phillips:			
Strothers	27-9-6	2	57
Prairie:			
Cudjo, R.	35-9-6	3	382
Franks	35-9-6	6	694
Giblet	35-9-6	3	1,176
Gross	25-9-6	5	22
Mason	35-9-6	1	36
Spencer	13-9-6	1	5
Strothers	27-9-6	8	773
Tiger	10-8-6	1	27
Pure:			
Strothers	26-9-6	17	3,219
Strothers "B"	36-9-6	4	177
Strothers "C"	34-9-6	1	225
Shell:			
Harber	22-9-6	1	75
Lasley	23-9-6	2	31
Sinclair:			
Carter, J.	13-9-6	2	15
Cudjo "A"	35-9-6	6	469
Cudjo "B"	35-9-6	4	453
Dicey	22-9-6	2	340
Fixico	35-9-6	4	383
Superior:			
Cudjo, B.	35-9-6	4	67
Noble	15-9-6	1	1
Texas:			
Mayhue	14-9-6	2	641
Strothers	3-8-6	1	45
Turman:			
Cudjo	35-9-6	4	366
Grisso	35-9-6	1	210

Company, farm—	Location	Wells	Prod.
Jones	34-9-6	4	782
Total		273	26,374
East Seminole Pool			
Barnsdall:			
Keypaya	7-9-7	1	17
Continental:			
Boring	17-9-7	1	45
Johnson	18-9-7	3	681
Continental-Sinclair:			
Perry	18-9-7	2	400
Devonian:			
Harjo	18-9-7	1	10
Gypsy:			
Harjo	18-9-7	2	299
Magnolia:			
Drewery	18-9-7	2	26
Prairie:			
Stubbs	18-9-7	3	13
Shaffer:			
Haigler	19-9-7	1	17
Sinclair:			
Coody, B.	18-9-7	3	1,625
Coody, D.	17-9-7	1	51
Johnson, G.	18-9-7	1	150
Johnson "B"	18-9-7	1	85
Thompson, "B"	18-9-7	1	540
Sinclair-Continental:			
Warrior, J.	17-9-7	2	26
Sinclair-Gypsy:			
Okfuskee	18-9-7	1	176
Sinclair-Phillips:			
Warrior, S.	17-9-7	2	80
Total		28	4,241
Searight Pool			
Amerada:			
Johnson	4- 9-6	1	20
Nicey	3- 9-6	1	4
Strothers	3- 9-6	2	130
Barnsdall:			
Jackson	5- 9-6	2	19
Johnson	22-10-6	1	Off
Burke-Greis et al:			
Nevins	32-10-6	1	678
Varnum	32-10-6	1	275
Carter:			
Davis	4- 9-6	2	150
Frazier	3- 9-6	5	199
Kiker	2- 9-6	1	16
Mandler	2- 9-6	2	5
Scott	26-10-6	1	10
Amerada (Comm)	11- 9-6	1	13
I.T.I.O. (Comm)	11- 9-6	1	260
Mayhue (Comm)	11- 9-6	1	1,187
McMan (Comm)	11- 9-6	1	882
Skiff (Comm)	10- 9-6	1	27
Slick (Comm)	11- 9-6	2	549
Stewart (Comm)	10- 9-6	1	213
Strothers (Comm)	11- 9-6	2	684
Gypsy:			
Cudjo	4- 9-6	3	469
Nevins	32-10-6	2	416
Magnolia:			
Varnum	32-10-6	3	31
Varnum, W. F.	5- 9-6	1	427
Mid-Continent:			
Grayson	34-10-6	4	17
Saloche	33-10-6	5	287
Mid-Continent-Homaokla:			
Nevins	32-10-6	4	500
Papoose:			
Marks	32-10-6	1	253
Pine, W. B.:			
Lulu	4- 9-6	1	15
Prairie:			
Cannon	33-10-6	1	1
Carter, J.	10- 9-6	1	2
Hauck	33-10-6	1	2
Hurford	32-10-6	1	20
Kinkaid	33-10-6	2	55
Weimer	22-10-6	1	12
Pure:			
Aldridge	3- 9-6	3	647
Shell:			
Crump	32-10-6	1	Off
Strothers	3- 9-6	4	269
Sinclair:			
Polly	3- 9-6	4	1,137
Superior:			
Varnum	4- 9-6	1	18
Texas:			
Fleet	4- 9-6	1	17
Twin State:			
Varnum	4- 9-6	2	121
Wilcox:			
Chupco	4- 9-6	6	198
Total		83	10,235

PANHANDLE FIELDS

(Continued from Page 80)

171 feet. Gose & Waggoner's No. 1 Inman was dry and abandoned at 653 feet. Holbrook & Wood's No. 6 Dean was dry and abandoned at 550 feet. Madden & Hunt's No. 2 Kunkel was dry and abandoned at 1,177 feet. Nicks & Stump's No. 1 Bailey made 25 bbls. at 879-80 feet. Panhandle Refining Co.'s No. 4 Prideaux was dry and abandoned at 733 feet. Park's No. 2 Cullers made 20 bbls. at 543-73 feet. Reed Wooten's No. 1 Fisher was dry and abandoned at 749 feet. Smith Chandler's No. 1 Loftin was dry and abandoned at 738 feet. United Production Co.'s No. 3 Kunkel was dry and abandoned at 1,174 feet. Wise Jackson's No. 4 Cullers had an initial production of 15 bbls. at 546-83 feet. Wolf's No. 1 Hill had an initial production of 27 bbls. at 1,033-34 feet. Hinson & Tidwell's No. 1 Mizzell-Perkins had an initial production of 50 bbls. at 2,665-80 feet. Campbell's No. 2 Campbell had an initial production of 10 bbls. at 886-903 feet. Goldsmith and King Royalty Co.'s No. 3 Kunkel had an initial production of 150 bbls. Holbrook & Wood's No. 5 Dean had an initial production of 5 bbls. at 490-500 feet. Pennell and others' No. 1 Logan was dry and abandoned at 805 feet. Perkins' No. 1 Patterson was dry and abandoned at 1,085 feet. Sun Oil Co.'s No. 13 Deitrich had an initial production of 220 bbls. at 1,147-58 feet. The Texas Company's No. 3 Stewart was dry and abandoned at 875 feet. United Production Co.'s No. 2 Kunkel had an initial production of 51 bbls. at 1,136-44 feet. Shaw and others' No. 1 Kisinger had an initial production of 180 bbls. at 2,492-2,542 feet.

Grayson County

Bell, Claude and others' No. 1 Conn was dry and abandoned at 655 feet.

Wilbarger County

Empire Gas & Fuel Co.'s No. 23 Waggoner made 125 bbls. at 2,274-2,304 feet. Fain & McGaha Oil Corp.'s No. 19 Waggoner had an initial production of 165 bbls. at 2,267-93 feet. Its No. 4 Waggoner had an initial production of 75 bbls. after having been shot with 30 quarts at 2,408-12 feet. Its No. 1 Waggoner had an initial production of 20 bbls. after having a 40-quart shot at 2,435-45 feet. The Texas Company's No. 366 Waggoner was dry and abandoned at 1,543 feet.

Cosden Oil Co.'s No. 4 Waggoner had an initial production of 600 bbls. at 2,647-75 feet. Empire Gas & Fuel Co.'s No. 15-A Waggoner was shot with 30 quarts at 1,845-64 feet and had an initial production of 57 bbls. Its No. 24-B Waggoner was shot with 30 quarts at 2,275-98 feet and had an initial production of 114 bbls. Its No. 9-C Waggoner was dry and abandoned at 1,888 feet. Fain & McGaha Oil Co.'s No. 6 Waggoner was temporarily abandoned. Knight's No. 6 Waggoner-A location was abandoned. Shaw Oil Co.'s No. 1-H Waggoner was dry and abandoned at 2,403 feet. Simpson Fill's No. 4 Waggoner made 123 bbls. at 2,667-72 feet. Waggoner Refining Co.'s No. 12 Waggoner-J had an initial production of 90 bbls. at 2,387-92 feet.

Wichita County

Merrick Drilling Co.'s No. 1-D Fisher was dry and abandoned at 1,999 feet.

RANGER COMPLETIONS

Week ending November 16

Coleman County

Magnolia Petroleum Corp.'s No. 23 Morris was dry and abandoned at 2,927 feet. Morrison & St. John's No. 2 Eddington was dry and abandoned at 1,135 feet. Praskey and others' No. 1 Stozier was dry and abandoned at 1,902 feet. Levi Smith's No. 7 Morris had an initial production of 300 bbls. at 1,987-2,015 feet. Tower & McKanna's No. 1 Porter was dry and abandoned at 2,623 feet. Vacuum Oil Co. and others' No. 4 Weaver had an initial production of 256 bbls. at 1,818-44 feet. White Eagle Oil & Refining Co.'s No. 28 Morris had an initial production of 200 bbls. at 2,000-2,030 feet. Cunningham's No. 1 Campbell was dry and abandoned at 1,401 feet. Dozier & Humphrey's No. 2 McAdams was dry and abandoned at 1,093 feet. Drake-Cameron's No. 1 Cannon was temporarily abandoned. Permian Oil Co.'s No. 5 Crowder was dry and abandoned at 2,060 feet. White Eagle Oil & Refining Co.'s No. 32 Morris had an initial production of 250 bbls. at 2,020-34 feet. May and others' No. 1 Brooks was dry and abandoned at 1,409 feet.

Brown County

Bower and others' No. 2 Gidding had an initial production of 5 bbls. at 1,535-44 feet. W. D. Gulley's No. 1 Armstrong was dry and abandoned at 1,460 feet. Humble Oil & Refining Co.'s No. 1 Carter had an initial production of 67 bbls. at 1,280-92 feet. Its No. 9 Kilgore-A had an initial production of 40 bbls. at 1,138-54 feet. S. B. Owens' No. 7 Cannon was dry and abandoned at 1,177 feet. Paramount Oil Refining Co.'s No. 1 Willis was dry and abandoned at 1,425 feet. Bealey and others' No. 1 Dabneg was temporarily abandoned at 1,659 feet. E. T. Murray's No. 1 White was plugged and abandoned at 1,203 feet. Paramount's No. 1 Robbins was dry and abandoned at 955 feet. American Maracaibo Co.'s No. 2 Cross was dry and abandoned at 1,142 feet. G. A. Brider's No. 7 Kesslar was dry and abandoned at 1,367 feet. His No. 8 Kesslar was dry and abandoned at 1,381 feet. Brider trustee's No. 7 Munselle was drilled to a total depth of 1,250 feet, was plugged back to 1,190 feet, shot with 25 quarts at 1,185-90 feet and had an initial production of 25 bbls. Cross Cut Corp.'s No. 1 Newton was dry and abandoned at 2,052 feet.

S. Herring's No. 1 Burnett was dry and abandoned at 1,463 feet. W. G. Sawyer's No. 1 Turner was drilled to a total depth of 1,610 feet, topped the pay at 1,605 feet and had an initial production of 6,000,000 feet of gas. E. L. Smith Oil Co.'s No. 11 George was dry and abandoned at 1,335 feet. The Texas Company's No. 11 Kessler had an initial production of 115 bbls. at 1,269-1,288 feet. Phil French's No. 1 Hayes was dry and abandoned at 1,037 feet. Humble Oil & Refining Co.'s No. 1 Martin had an initial production of 15 bbls. at 967-74 feet. Texas California Oil Co.'s No. 3 Martin was dry and abandoned at 1,016 feet.

Eastland County

Hoffman & Page's No. 3 Lyerla had an initial production of 18 bbls. at 1,266-81 feet. Labaugh and others' No. 1 Raney and others had an initial production of 1,952,000 feet of gas at 1,651-58 feet. Warner-Quinlan's No. 1 Stamps was dry and abandoned at 3,756 feet.

Palo Pinto County

Neely & Halbert's No. 1 Neal was dry and abandoned at 4,418 feet.

Shackelford County

Campbell and others' No. 1-B Hennessy was dry and abandoned at 1,724 feet. R. H. Caperton's No. 1 Todd was dry and abandoned at 550 feet. Grisham & Hunter Oil Corp.'s No. 4 Davis had an initial production of 12 bbls. at 1,631-55 feet. Midwest Exploration Co.'s No. 3 Davis had an initial production of 30 bbls. at 1,499-1,511 feet. Scott & Walker's No. 1 Alexander had an initial production of 2,000,000 feet of gas at 1,033-36 feet. Southern Exploration Co.'s No. 6 Dyer had an initial production of 12 bbls. at 929-940 feet. Callihan & Carter's No. 1 Hatcher was dry and abandoned at 1,005 feet. Engle Brothers' No. 5-A Matthews was dry and abandoned at 1,260 feet. Phil French's No. 2 Dawson was dry and abandoned at 1,745 feet. Frizzell & Smally's No. 2 Alexander had an initial production of 15 bbls. at 878-96 feet. Moutray Oil Co.'s No. 2 Nail was dry and abandoned at 808 feet. Tannehill and others' No. 6 Matthews had an initial production of 194 bbls. at 1,141-59 feet. Van Zandt & Eldridge's No. 2 Dodson was dry and abandoned at 710 feet.

Stephens County

Ashe Syndicate's No. 3 Hart and others was dry and abandoned at 3,912 feet. Prairie Oil & Gas Co.'s No. 1-C Veale topped the pay at 3,690-3,704 feet and was drilled to a total depth of 4,540 feet, shot with 40 quarts at 3,690-3,704 feet and had an initial production of 6 bbls. oil and 5,500 feet of gas.

PANHANDLE COMPLETIONS

Week ending November 16

Carson County

The Texas Company's No. 4 Lewis, located Section 115, Block 4, I.&G.N.R.R. Survey, had an initial production of 82 bbls. at 3,110-30 feet. The Texas Company's No. 2 Noel, located 990 feet from south, 330 feet from west of NW cor., Section 187, Block B-3, I.&G.N., had an initial production of 120 bbls. at 3,160-3,212 feet and was drilled to a total depth of 3,291 feet.

Gray County

Big Gray Oil Co.'s No. 1-A Saunders, located Section 40, Block 3, I.&G.N. Survey, location was abandoned. Danciger Oil & Refining Co.'s No. 7 Beck, located Section 28, Block B-2, H.&G.N.R.R. Survey, topped the pay at 2,770 feet, was drilled to a total depth of 2,780 feet and had an initial production of 1,050 bbls. McMan Oil & Gas Co.'s No. 4 Jackson, located Section 90, Block B-2, H.& G.N.R.R. Survey, swabbed 705 bbls. at 2,980-3,030 feet. Phillips Petroleum Corp.'s No. 1 Jackson, located Section 58, Block B-2, pumped 7 bbls. daily at 2,810-20 feet after having been drilled to a total depth of 3,260 feet and plugged back.

Hutchinson County

Devore and others' No. 1 Johnson Brothers, located Section 28, Block Y, A.&B. Survey, had an initial production of 40 bbls. oil and 11,000,000 feet of gas at 2,930-50 feet.

Wheeler County

Martin & Debous' No. 1-A Close, Section 83, Block 23, had an initial production of 35,000,000 feet of gas at 1,437-1,565 feet. Murchison & Fain's No. 1 Close was dry and abandoned at 1,285 feet. The Texas Company's No. 1 Cuddleback, Section 18, Block 24, H.&G.N. Survey, had an initial production of 30,000,000 feet of gas at 1,905-21 feet.

WEST TEXAS FIELDS

(Continued from Page 79)

the pay at 2,611 feet, was drilled to a total depth of 2,623 feet and had an initial production of 130 bbls. oil, 66 per cent water. Young-Donnelly's No. 1 Massie, located 150 feet from south and west of Section 28, Block UV, was dry and abandoned at 370 feet. Their No. 2 Shannon, located 2,640 feet from north and west of Section 40, Block BB, location was abandoned.

Howard County

Amerada Petroleum Corp.'s No. 13 Roberts, located 250 feet from south and 1,320 feet from east of Section 128, Block 29, topped the pay at 1,298 feet, was drilled to a total depth of 1,325 feet, was shot with 14 quarts at 1,298-1,312 feet and had an initial production of 7 bbls. American-Maracaibo's No. 3-A Roberts, located Section 6, Block 32, Township 2s, had an initial production of 690 bbls. at 2,248-66 feet. Continental Oil Co.'s No. 4 Abrams, located 2,310 feet from north, 1,650 feet from east, of Section 13, Block 33, topped the pay at 2,208 feet, was drilled to a total depth of 2,230 feet and an initial production of 850 bbls. Its No. 6-C Chalk, located 1,520 feet from north, 2,445 feet east, of Section 146, Block 29, topped the pay at 1,817 feet, was drilled to a total depth of 1,848 feet, topped the pay at 1,817 feet and had an initial production of 63 bbls. Godley's No. 2 Hooks, located 2,000 feet from north and 200 feet from west of Section 140, Block 29, topped the pay at 1,835 feet, was drilled to a total depth of 1,859 feet, was shot with 60 quarts at 1,835-58 feet and had an initial production of 40 bbls. Ward Oil Co.'s No. 15 Roberts, located 2,430 feet from south and west lines of Section 137, Block 29, had an initial production of 100 bbls. at 1,345-81 feet.

Mitchell County

Ellis' No. 1 Ellwood, located 660 feet from south and west of Section 30, Block 18, was dry and abandoned at 647 feet. McGinley's No. 1 Scott, located 1,980 feet from south and west of Section 35, Block 17, was dry and abandoned at 730 feet.

Pecos County

Cowboy Evans' No. 1 Pecos Valley, located 660 feet from southwest and 1,320 feet from southeast, Section 36, Block 3, H.&T.C.R.R. Survey, topped the pay at 1,556 feet, was drilled to a total depth of 1,604 feet and had an initial production of 7 bbls. Continental Oil Co.'s No. 5-A University, located 330 feet from north and 1,020 feet from west of Section 6, Block 17, topped the pay at 972 feet, was drilled to a total depth of 972 feet and had an initial production of 570 bbls. Crosby Production Co.'s No. 1 Fort Stockton, located 330 feet from north and 2,310 feet from east of Section 31, Block 178, topped the salt at 1,140 feet, was drilled to a total depth of 2,310 feet and was dry and abandoned. Gulf Production Co.'s No. 21-A Smith, located 1,544 feet from south and 330 feet from west of Section 28, Block 194, topped the lime at 1,550 feet, topped the pay at 1,540 feet, was drilled to a total depth of 1,770 feet and had an initial production of 75 bbls. Landreth Production Co.'s No. 2-A University, located 990 feet from south and east of Section 13, Block 18, topped the pay at 1,672 feet, was drilled to a total depth of 1,694 feet,

plugged back to 1,691 feet and had an initial production of 371 bbls. Landreth Production Co.'s No. 2-A McDonald, located 2,310 feet from south and 330 feet from east of Section 46, Block 12, was dry and abandoned at 1,663 feet. Pope & Hagen's No. 1 Byrne location was abandoned. Tree's No. 1 fee, located 330 feet from south and east of Section 43, Block 8, was dry and abandoned at 2,982 feet. Grayburg Oil Co.'s No. 8 Pecos River Bed, completed March 18, 1928, with an initial production of 50 bbls. daily at 1,060-95 feet, was dry and abandoned. Landreth Production Corp.'s No. 2-C University, located Section 31, Block 16, had an initial production of 1,430 bbls. at 1,633-55 feet. Landreth's No. 2-G University, located Section 31, Block 16, had an initial production of 1,227 bbls. at 970-974 feet. Landreth & World Oil Co.'s No. 4-B University, located Section 13, Block 18, had an initial production of 2,541 bbls. first 21 hours at 1,596-1,635 feet. Shell Petroleum Corp.'s No. 4-C University, located Section 31, Block 16, topped the pay at 1,625-45 feet and had an initial production of 237 bbls.

Reagan County

Kemrow's No. 1 Sawyer, located C of NW of E half of Section 8, location was abandoned.

Sterling County

Fuhrman Petroleum Co.'s No. 1 Cole, located Section 5½, Block 1, location was abandoned.

Upton County

Dixie Oil Co.'s No. 32 Burleson, located 330 feet from north, 1,640 feet from east, of Section 2, topped the salt at 525 feet, topped the lime at 1,880 feet, topped the pay at 2,020 feet, was drilled to a total depth of 2,058 feet and had an initial production of 164 bbls. Pure Oil Co.'s No. 2 Hughes, located Section 4, William Teer Survey, had an initial production of 63 bbls. at 2,270-2,310 feet. T. P. Coal & Oil Co.'s No. 1 Sherk, located Section 1, Block 3, topped the lime at 2,310 feet, topped the pay at 2,420 feet, was drilled to a total depth of 2,497 feet and had an initial production of 605 bbls.

WEST TEXAS PRODUCTION
Week Ending November 16

County—	Wells	Bbls.
Crane County	319	35,570
Crockett County	44	1,625
Ector County	4	150
Fisher County	7	1,430
Glasscock-Howard	427	42,640
Jones County	73	2,590
Loving County	16	850
Mitchell County	142	2,468
Pecos County	362	143,505
Reagan County	253	17,270
Runnels County	3	22
Scurry County	5	20
Upton County	242	9,395
Ward Coun.y	15	1,800
Winkler County	596	108,745
Total this week	2,507	368,080
Total last week	2,495	361,791
Difference	12	6,289

PIPE LINE RUNS
October 30 to November 6
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co., Port Arthur, Tex.	37,500
Gulf P. L. Co., to coast via Ranger, Tex.	26,021
Humble P. L. Co., Comyn, Tex.	37,977
Humble P. L. Co., Ingleside, Tex.	51,705
Illinois P. L. Co., Del Rio, Tex.	44,415
Magnolia P. L. Co., DeLeon, Tex.	26,136
Pasotex P. L. Co., El Paso, Tex.	8,006
Shell P. L. Co., Healdton, Okla.	40,763
Shell P. L. Co., Houston, Tex.	21,640
The Texas Co., Houston, Tex.	24,009
Total	318,172
Tank Car Shipments	
Thomas & Brann, Grant City, Tex.	100
Orient Co., McCamey, Tex.	100
American Pet. Co., Pyote, Tex.	None
Southern Crude O. P. Co., Wickett, Tex.	13,030
Total	13,230
Runs to West Texas Refineries	
Amarillo Prod. Co., Pyote, Tex.	off
Bluebonnett Ref. Co., Wickett, Tex.	3,556
Burford Ref. Co., Pecos, Tex.	4,229
Col-Tex Ref. Co., Colorado, Tex.	7,000
Cosden Ref. Co., Big Spring, Tex.	6,130
Great Western Ref. Co., Big Spring, Tex.	3,780
Humble O. & R. Co., McCamey, Tex.	10,475
Mid-Tex Ref. Co., Midland, Tex.	None
Tonkawa Ref. Co., Pyote, Tex.	2,164
Big Spring Ref. Co., Big Spring, Tex.	1,675
Richardson Ref. Co., Big Spring, Tex.	3,277
Wickett Ref. Co., Pyote, Tex.	225
Total	42,511

Summary

	Previous week	Last week
Pipe line runs through trunk lines	344,025	318,172
Tank car shipments	21,292	13,230
Runs to West Texas refineries	38,632	42,511
Total daily distribution	403,949	373,913
Total daily production.	356,542	364,577
Daily average from storage	47,407	9,336

PECOS COUNTY
Week ending November 12

Company, lease—	Wells	Prod.
M. H. Black:		
Fee	1	10
California Co.:		
Yates—Lease 1	18	9,782
Smith—Lease 1, Sec. 37	3	671
Smith—Lease 1, Sec. 23	8	2,556
Smith—Lease 1, Sec. 21	5	1,459
Smith—Lease 2	3	513
Smith—Lease 3	13	2,674
Smith	1	8
Tippett—Lease 1	1	31
University	1	78
Continental Oil Co.:		
Yates-A	6	495
Salvage	..	5,182
University-A	1	111
Cosby Drilling Co.:		
Smith	2	620
Dorn & McGee:		
Pecos Valley	1	26
Grayburg Oil Co.:		
Pecos River Bed	6	336
Salvage	..	255
Gulf Prod. Co.:		
All leases	41	17,944
Henshaw Oil Corp.:		
University	1	50
Humble O. & R. Co.:		
Smith-A	11	2,074
Smith-B	7	1,084
Kirby Pet. Co.:		
Tippett	2	60
Kirby Pet. and Edson:		
Tippett	1	220
McCarty Oil Co.:		
Gray	1	8
Bennett	1	8
McMan Oil & Gas Co.:		
Smith-A	1,	1,805
Smith-B	4	1,395
Smith-C	9	883
Tippett	3	439
Richardson	2	184
McMan and Continental:		
Yates	17	5,910
Mid-Kansas and Transcon.:		
Yates-A	28	22,094
Yates-B	27	7,044
Salvage	..	258
Yates-C	11	8,526
Salvage	..	211
Yates-D	7	8,599
Yates-E	3	893
Yates-F	4	886
Yates-G	3	1,285
Yates-H	10	9,215
Smith	6	2,600
Smith-Taylor	19	4,571
Landreth Prod. Co.:		
University-A	1	531
University-C	1	1,269
University-G	1	1,133
University-H	1	24
Landreth and World:		
University-B	3	1,157
J. D. O'Mara:		
Butz	1	20
Pecos Valley Oil:		
Fee, Sec. 22, Blk. 26	2	34
Phillips Pet. Corp.:		
Monroe	2	179
Ramsey	3	931
Smith	3	602
Plymouth Pet. Corp.:		
Perry	1	25
Red Bank Oil Co.:		
Smith	5	518
Rowan-Tong and Independent:		
McDonald	1	....
Savoy-Mazda:		
Smith	2	660
Shell Pet. Corp.:		
Tippett	11	2,902
Smith	11	1,606
Smith-B	1	654
Smith-D	4	821
Smith-E	1	30
Bower-University-C	3	335
Simms Oil Co.:		
Smith	7	6,723
Skelly Oil Co.:		
Tippett	2	225
Taylor-Link:		
University	5	689
Total Pecos Field	361	144,121

DAILY AVERAGE PRODUCTION BY LEASES
WINKLER COUNTY
Week ending November 12

Company, farm, sec., blk.—	Wells	Prod.
Amerada Pet. Corp.:		
Cowden, 3, B-12	3	31
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	7	2,399
Hendricks-B, 44, 26	6	746
Hendricks-D, 29, B-5	7	597
Hendricks-E, 41, B-5	6	853
Hendricks-G, 46, 26	7	9
Atlantic O. P. Co.:		
Hendricks-F, 40, 26	12	616
Bankers Prod. Co.:		
Hendricks, 30, B-5	1	....
V. T. Bolin:		
Brown-Altman, 4, B-5	1	4
California Co.:		
Hendricks, 29, B-5	7	660
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	214
Hendricks-B, 35, B-5	1	58
Hendricks-C, 33, 26	2	443
Hendricks-E, 33, 26	2	143
Cranfill & Texon:		
Hutchings, 47, 26	1	71
Culberson Bros.:		
Hendricks, 40, B-5	1	59
Eastland Oil Co.:		
Hendricks, 35, B-5	2	295
Hendricks-B, 46, 26	1	138
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	4,722
Hendricks-B, 45, 26	11	3,064
Hendricks-C, 40, B-5	6	462
Hendricks, 44, 26	3	561
Cowden, 3, B-12	3	131
Humble O. & R. Co.:		
Hendricks-A, 34, B-5	17	4,428
Hendricks-B, 29, B-5	6	2,158
Hendricks-C, 32, 26	8	521
Hendricks-D, 41, 26	1	139
Hendricks-B, 39, 26	3	268
Hendricks-C, 10, B-12	13	7,637
Walton-A, 48, 26	1	108
Independent Oil & Gas:		
Hendricks-A, 34, B-5	7	808
Howe-B, 44, 26	3	136
McCabe, 36, B-5	2	323
Vardeman-B, 41, B-5	6	349
Lion Oil Co.:		
Hendricks-A, 41, B-5	11	2,827
Hendricks-B, 34, B-5	13	2,720
Hendricks-C, 45, 26	14	5,426
Hendricks-D, 44, 26	1	106
Magnolia Pet. Co.:		
Hendricks, 29, B-5	8	450
Mariand Oil Co.:		
Hendricks, 33, 26	4	671
Hendricks-A, 29, 26	2	80
Hendricks-B, 34, 26	2	21
May Prod. Co.:		
Hendricks, 34, 26	1	10
American Maracaibo:		
Hendricks-A, 28, B-5	1	24
Hendricks-B, 28, B-5	1	37
Mining & Engineering:		
Hendricks 10 B-12	1	...
Murchison & Cranfill:		
Hendricks-A 35 B-5	2	284
Hendricks-B 35 B-5	3	314
Hendricks-C 35 B-5	1	...
Hendricks-H 35 B-5	1	552
Hendricks-I 34 26	1	80
Republic Produc.ion Co.:		
Hendricks-B 45 26	12	1,389
Hendricks-A 41 B-5	5	137
Prairie Oil & Gas Co.:		
Hendricks 40 26	6	1,361
Cowden 3 B-12	6	1,976
Shell Petroleum Corp.:		
Hendricks-A 45 26	5	456
Hendricks-B 29 B-5	5	1,166
Hendricks-C 29 B-5	7	448
Hendricks-D 41 B-5	3	128
Hendricks-E 40 B-5	3	319
Hendricks-F 46 26	6	269
Hendricks-G 39 26	1	70
Shell-Texas Company:		
Cowden-A 3 B-12	6	1,389
Hendricks 45 26	6	1,574
Hendricks-A 29 B-5	7	977
Hendricks-B 40 26	4	265
Hendricks-C 40 26	6	1,579
Hendricks-D 40 26	6	279
Hendricks-E 39 26	2	148
Skelly Oil Co.:		
Hendricks 40 26	12	4,552
Hendricks-B 10 B-12	2	17
Hendricks-C 39 26	1	73
Southern Crude O. P. Co.:		
T-67 Hendricks-A 42 B-5	3	120
T-67 Hendricks-3-A 4 B-12	4	351
T-67 Hendricks-B 44 26	5	293
T-67 Hendricks-3-B 33 26	4	600
T-67 Hendricks-C 33 B-5	5	435
T-67 Hendricks-2-D 27 26	5	1,074
T-67 Hendricks-E 42 B-5	4	113
T-67 Hendricks-F 33 B-5	5	473
T-68 Hendricks-3-A 35 B-5	3	100
T-68 Hendricks-B 46 26	2	155
T-68 Hendricks-A 44 26	6	600
T-88 Hendricks-B 4 B-12	2	196
T-88 Hendricks-C 28 B-5	3	942
T-88 Hendricks-D 4 B-12	6	2,620
T-88 Hendricks-H 28 B-5	6	1,040
T-88 Hendricks-I 20 B-5	7	741
T-88 Hendricks-J 30 B-5	5	450
T-88 Hendricks-K 41 26	7	1,056
T-88 Hendricks-L 4 B-12	4	484
T-88 Hendricks-M 33 26	33	11,232
T-88 Hendricks-N 28 26	7	2,036
T-88 Hendricks-O 28 26	4	341
T-88 Hendricks-P 28 26	2	315
T-88 Hendricks-Q 27 26	2	321
T-88 Hendricks-R 27 26	3	865
T-88 Hendricks-S 34 26	4	1,522
T-88 Hendricks-T 34 26	7	981
T-88 Hendricks-U 41 26	10	1,117
T-88 Hendricks-V 29 26	1	72
T-88 Hendricks-W 5 B-12	1	278
T-88 Hendricks-CX 21 26	4	1,101
T-89 Hendricks-A 35 B-5	3	179
T-89 Hendricks-B 35 B-5	2	309
T-89 Hendricks-C 35 B-5	3	570
T-89 Hendricks-D 35 B-5	1	137
T-89 Hendricks-E 40 B-5	3	93
T-89 Hendricks-F 40 B-5	2	230
T-89 Hendricks-H 46 26	2	183
T-89 Hendricks-I 10 B-12	2	46
T-89 Hendricks-J 9 B-12	8	914
T-89 Hendricks-L 15 B-12	2	1,128
T-90 Hutchings 47 26	2	281
Texon Oil & Land Co.:		
Hendricks-A 41 B-5	6	110
Hendricks-B 45 26	6	1,781
Winkler O. P. Co.:		
Hendricks 33 26	1	11
Total Hendricks Pool	562	103,862
Leck Area		
Atlantic, Kesslar & Logan:		
Leck 3 74	2	154
Amerada Petroleum Corp.:		
Leck 3 74	2	301
Empire Gas & Fuel Co.:		
Daugherty 3 74	3	155
Magnolia Petroleum Co.:		
Scarborough 1 C-22	2	177
Gulf Prod. Co.:		
Scarborough 1 C-22	1	69
Daugherty 3 74	2	582
Shell-Llano Oil Co.:		
Daugherty 1 C-22	5	293
Shell-Danciger:		
Daugherty 3 74	2	71
Skelly Oil Co.:		
Daugherty 22 16	4	1,342
Tidal Oil Co.:		
Scarborough 1 C-22	1	131
Prairie Oil & Gas Co.:		
Leck 16 74	1	443
Daugherty 3 74	1	127
Scarborough 1 C-22	1	59
Warner-Quinlan:		
Leck 3 74	1	410
Total	28	4,314
O'Brien Pool		
Continental:		
Morton-A 10 B-12	1	80
Morton-B 10 B-12	2	97
Wentz Oil Corp.:		
Morton 10 B-12	1	197
Simms Oil Co.:		
Sealy 50 F	1	28
Richardson et al:		
Stockton 50 F	1	91
Total O'Brien Pool	6	493
Total Winkler County	596	108,669

INQUIRIES FOR PIPE FOR CALIFORNIA LINE

By B. E. V. Luty

PITTSBURGH, Pa., Nov. 18.—Demand for steel continues to decline. It is still of moderate volume, by a long range comparison. There is nothing like a slump. Some of the old-timers, recalling how demand dropped perpendicularly at the time of the stock market panic in October, 1907, comment on how well the steel market is behaving when the stock market has had by far the greatest break in its history. The steel business, however, is different nowadays as no stocks of steel or of things made from steel are carried and ultimate consumption proceeds though in the long run there will presumably be considerable tapering off. Part of the decrease in steel demand in the past three weeks is strictly seasonal in character.

Steel ingot production in October was somewhat heavier than estimated, being at 85.21 per cent of capacity according to the official computation, against 92.01 per cent in September and 99.59 per cent in May, the peak month. Production was declining during the month, however. With an 85 per cent average the month may be assumed to have opened at close to 90 per cent, winding up at not much over 80 per cent. The rate in the past week has been about 75 per cent. Both the seasonal influence and the stock market indicate further recession to the end of the year, presumably to a rate well under 70 per cent. Then the question is whether there will be the usual recovery, it being the regular thing for production to increase during the first three months of a year.

The Steel Corp.'s unfilled obligations increased 183,981 tons during October, following 244,370 tons increase in September, there having been four successive months with a large total decrease. More than half of the annual rail buying occurred during the two months, while rail shipments were light, and rails alone would account for more than the total increase reported for the two months in unfilled obligations.

The Standard Oil Co. has made inquiries for various lots of line pipe for piping natural gas in California. The engineers have the project in hand and desire figures of cost to determine what size pipe should be used, whether one line or more than one, etc. It is estimated that about 80,000 tons of pipe will be involved. The project is expected to be consummated but it may be months before actual orders are placed. As to the prospective gas line from Texas to Chicago, pipe mills do not expect anything to develop until some time after January 1.

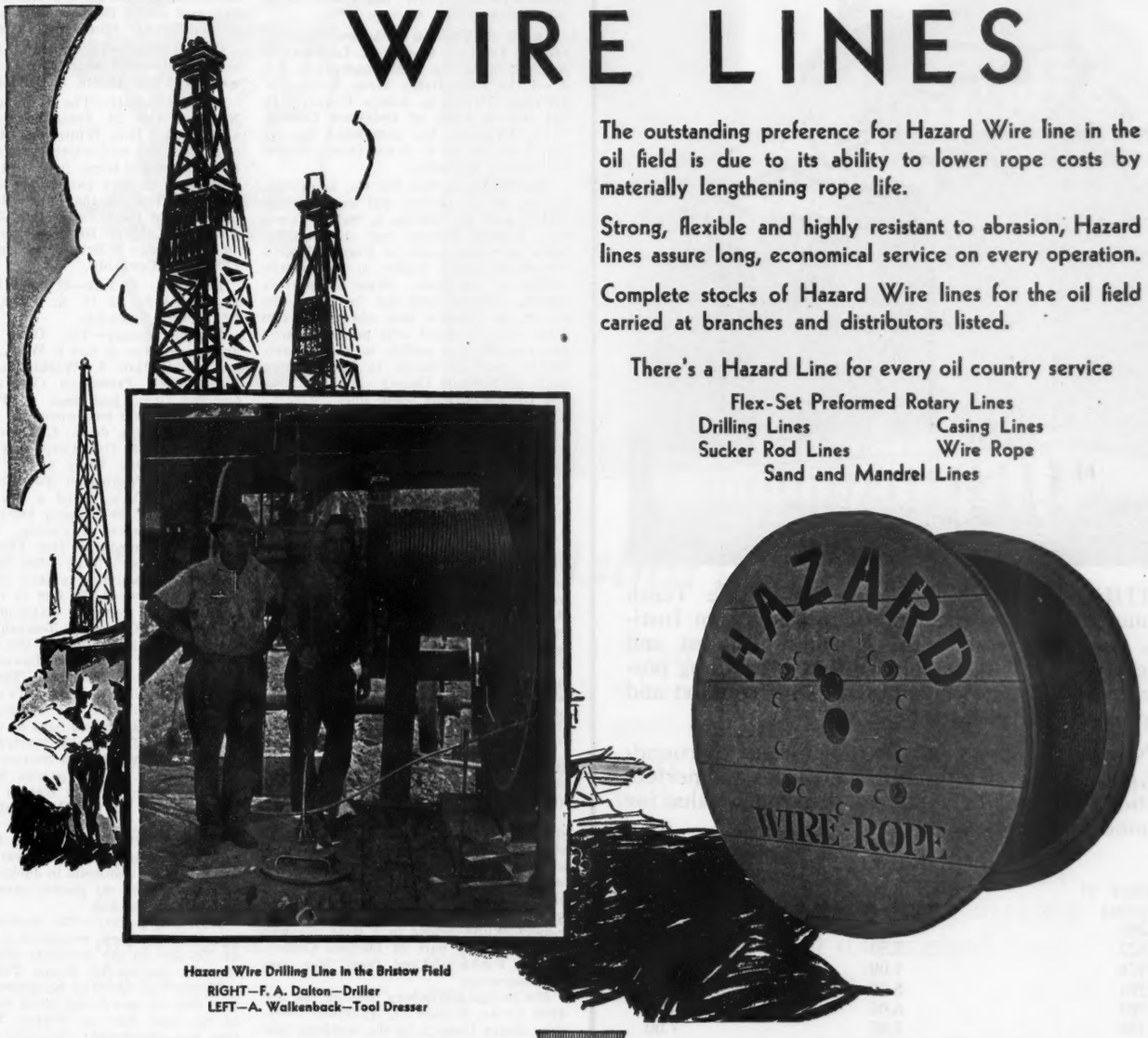
The sum total of demand on the pipe and tube mills from the first of the year to date is somewhat above that in the same period of last year. Chances are that this lead will not be lost and that the year's production as officially reported will be above 1928. The official figures do not include the electrically welded line pipe made at Milwaukee.

Pipe and tube mills are operating at an average of between 60 and 65 per cent.

Pipe prices are understood to be maintained perfectly. Other finished steel products, while not entirely steady are doing quite well and there are no outright declines to be recorded, except that cold finished bars have slipped $2 a ton, from 2.30 cents to 2.20 cents, f.o.b. Pittsburgh, Cleveland or Chicago.

HAZARD

WIRE LINES



Hazard Wire Drilling Line in the Bristow Field
RIGHT—F. A. Dalton—Driller
LEFT—A. Walkenback—Tool Dresser

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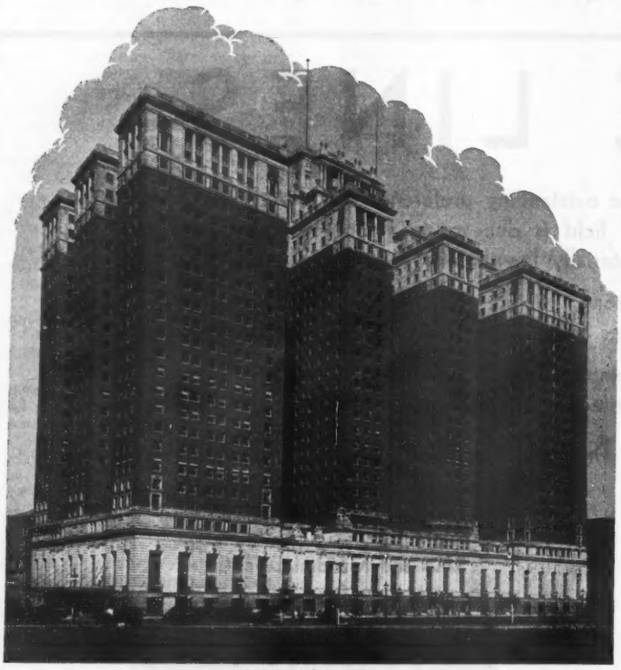

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CENTRAL WEST FIELDS

(Continued from Page 72)

work in hope of finding something new. Reports from Gary, Ind., are that a location for an important test has been made southwest of Gary, near the town of Highland, and in the northern portion of Lake County, the most northwestern county in Indiana. Should this test develop commercial production, it will bring about a big development in either oil or gas, being in the vicinity of Gary, Hammond and other important points just southeast of Chicago.

In the old Trenton Rock area of northeastern Indiana, George S. Lacknett is reported to have a 15-bbl. pumper in No. 4 on the Otto Baker farm, Section 3, Jefferson Township, Adams County. In the Muncie Field of Delaware County, C. F. Chapman has abandoned his old No. 1 on the G. S. Jones farm, Section 12, Liberty Township.

The Michigan-Ohio Oil Co. is drilling on the H. W. Bledsoe 221 acres, in the NE N half SE Section 6, Salem Township, Pulaski County, and close to 1½ miles west and north of Francisville, in the old Kankakee Valley, in the western section of the State. Same company is drilling another test not far from the one on the Bledsoe, and when these two wells are completed will probably move the two drilling outfits to the vicinity of the town of Brook, in the southern part of Newton County, not far from the Illinois-Indiana state line.

The Indiana Oil & Gas Corp., formerly reported as the Texana Oil Co., found a fair gas well in a second test 480 feet from the south line and 500 feet from the east line of the William Volkman, NE Section 32, Center Township, Gibson County, the gas being found between 1,690 and 1,699 feet. No. 3, same farm, is drilling and the same company is drilling No. 2 on the Mitchell, Section 33, same township. Same company has made a location on the Perry Colvin, Section 6, Washington Township, same county. The Big Four Oil & Gas Co. has plugged off the oil sand in its No. 1 on the Charles White, Section 18, same township, and will make a gas well as it has a good volume, while the oil was hardly worth the handling.

Pike County

William Bell and others' test on the Berkley Hill, Section 31, Madison Township, Pike County, is showing very light at a depth of close around 1,300 feet.

In the Sullivan Field, Hamilton Township, Sullivan County, Harry Knox and others have a very light oil producer in No. 5 on the Alex Raley, Section 9, while Fred Bays' second test on the Morris Unger, Section 2, Gill Township, was dry.

Bert White drilled in a light gas well in the eastern part of Daviess County, on the Frank McCord farm, just west of Loogoottee.

McClurkin and others' test on the Andrew Lucke, Section 31, Anderson Township, Berry County, in the southern portion of the State, was reported dry at slightly below 700 feet. In Harrison County, east of Perry County, the Southern Indiana Utilities Corp. drilled a dry hole on the Zimmerman farm, Section 15, Boone Township, at around 760 feet. Spencer County, in the same part of the State, Ben Robinson and others' Nos. 1 and 2 on the A. C. Huff, Section 18, Huff Township, were both failures. Big Six Oil Co. got one of the same kind on the Grass farm, same township, as did the Eastern Gulf Oil Co. on the Edwin Schriefer, same county, around 1,000 feet in depth.

Morristown Gas Co. drilled in a couple of fairly good gas wells at the western edge of Morristown, in Shelby County. Berry & Rhinehart found a dry hole on the J. F. Larkin, Section 29, Perry Township, Martin County, at slightly below 500 feet, and Foreman & Miller's test on the H. Gibson, Section 8, Center Township, same county, was dry around 530 feet.

Indiana Oil and Gas News

Compiled by Paul F. Simpson, state gas supervisor, Department of Commerce, Division of Geology, Indianapolis, by counties, November 1.

Adams County—George S. Slee Oil & Gas Co. abandoned No. 1 W. Greenfield, Section 6, Jefferson Township, and Scoofakes & Helfin abandoned No. 1 A. G. Briggs, Section 34, Wabash Township. George S. Lacknett's No. 3 Otto Baker made a 15-bbl. well; No. 4, same farm, is also a producer. They are in Section 4, Jefferson Township. Lacknett's No. 2 on the Sam Egley farm, is a 15-bbl. well, and No. 3 is drilling. Rosenthal & Fike got a producer in their first well on the Bollenbachers heirs farm in Section 34, Blue Creek Township.

Clay County—The Siosi Oil Co. is planning to drill near Brazil, and also west of Terre Haute in Illinois.

Daviess County—The McDougal heirs' No. 1, Section 21, Veale Township, was abandoned. Bert White was the driller of a small gas well which came in on the Frank McCord farm, just west of Loogoottee. Unknown parties are down 800 feet in a test on the Percy Ross farm near Sandy Hook in Section 32, Veale Township. Hart Brothers are drilling on the George O'Brien lease in Section 17, Reeve Township.

Delaware County—C. F. Chapman abandoned No. 1 G. S. Jones, Section 12, Liberty Township.

Gibson County—The Ohio Oil Co. abandoned Nos. 2 and 3 W. A. McRoberts in Section 7, Washington Township. Shell Petroleum Corp.'s No. 2 George Allen, just east of Francisco, was down 1,060 feet when last reported, and No. 3 was down 1,295 feet. The Indiana Oil & Gas Corp. has made a location on the Perry Colvin farm in Section 6, Washington Township. The United Oil Corp. found a dry hole at 1,638 feet on the Duncan heirs farm in Section 5, Barton Township. Mann & Huber abandoned the Tom Fleener well in Barton Township at 1,398 feet. When last heard from, the Indiana Oil & Gas Corp. was down 1,150 feet in the I. W. Gudgell well south of Oakland City in Section 25, Columbia Township. The Gem Oil Co. is drilling on the Eliza W. Harper farm, in Barton Township, and down more than 600 feet. The Wesley Ice's well, drilled in Barton Township by R. J. Randall, for the Indiana Oil & Gas Corp. was plugged back at the 1,720-foot level. They have started drilling in the No. 2 Mitchell in Section 33, Center Township. Same parties have been fishing casing at 1,699 feet in the William Volkman No. 3 well in Center Township.

Hancock County—During the past year, the Knightstown Natural Gas Co. has drilled in two wells in Jackson Township, each with 40 pounds pressure and a fair flow of gas.

Harrison County—The Southern Indiana Utilities Corp. completed a dry hole at 758 feet on the Jonathan Zimmerman farm in Section 15, Boone Township.

Henry County—The Knightstown Natural Gas Co. has drilled three wells within the past year in Wayne Township. One was abandoned; the other two produced a light flow of gas with 20 pounds pressure.

Jay County—Spencer & Pontius abandoned No. 4 I. A. Griffith in Section 23, Bear Creek Township.

Lagrange County—The drill is down more than 700 feet in the Clair Shoup well. It may test the Trenton.

Laporte County—A small supply of natural gas has been reported in a water well at Westville.

Marshall County—The Northern Indiana Development Co. is drilling near Plymouth.

Martin County

Martin County—The Harris Gibson test drilled by Forman & Miller in Section 8, Center Township, was plugged after being abandoned at 533 feet. Berry and Steinhart's test on the John F. Larkin farm in Section 29, Perry Township, was plugged at 510 feet.

Monroe County—The Petroleum Exploration Co. is drilling on the R. Howell and Mary E. Shirley farms.

Perry County—Glenn & Knollman are drilling a second well on the Glenn farm

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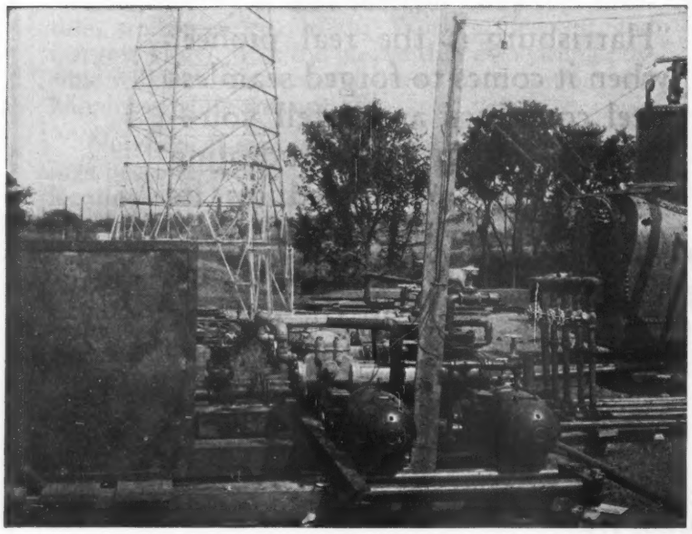

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in Section 18, Tobin Township. The test well drilled on the Frank Lucke in Section 31, Anderson Township, was abandoned at 710 feet.

Pike County—A. B. Bement abandoned the No. 2 J. P. Coleman in Location 14, Madison Township. Richer and others plugged their test on the P. Crow farm in Section 19, Washington Township, after it had been shot into water at 1,137 feet. It produced 2 bbls. of oil before shot. William Bell and others got production from 1,298 feet in their well on the Birkley Hill farm in Madison Township. The R. A. Hyneman well in Section 32, Clay Township, completed some time ago by Nelson Brothers, produced 10 bbls. initial from 1,295 feet. Dr. C. C. Taliaferro's fourth well on the Della Kime lease in Location 12, Clay Township, produced an initial of 30 bbls. from 1,210 to 1,243 feet. William Bell and others are down about 400 feet in the No. 1 Fred Lindy in Section 31, Clay Township. The Illpava Oil Co. has spudded on the No. 2 W. H. Lindy in the same section. The first well on this farm produced 30 bbls. from 1,311 to 1,320 feet. The Wiser Oil Co. has spudded in on the Everett Lovelace lease, location being in Section 23, Logan Township. Doctor Talliaferro has started drilling an offset to the Della Kime No. 4 on the Mary D. McAtee farm. Illpava Oil Co. got a 25-bbl. well on the Bessie Miller place in the North Olympus Pool, Section 31, Clay Township. Robertson and others got 40 bbls. initial from 1,132-1,135 feet in their well on the Vernor Preston farm in Section 30, Washington Township. Bement Gas Co. has been trying to shut off the water at 947 feet in W. H. Shawhan in Madison Township. The Shawhan No. 3 has been put on the pump. H. C. Darby Co. made 25 bbls. initial from 1,283 to 1,303 feet in the third well on the George Stewart farm in Section 23. Charles Diver and others have rigged up on the R. Walton farm, Section 14, Logan Township.

Posey County—George F. Robertson has moved the rig from the abandoned Martin well to the Charles Manchotte farm in Section 28, Harmony Township, where he will drill a test.

Pulaski County—Jacob L. Egleston of Remington has leased many old wells in the Medaryville and Gillom Fields, and is cleaning them out. Four wells are already producing a high grade of lubricating oil. The Michigan Ohio Oil Co. is drilling on the Bledso farm northwest of Francisville. The same company is also drilling another test in the vicinity.

Randolph County—C. F. Chapman abandoned the No. 2 Fowler and the Nos. 2, 3, 4, and 5 Stuck in Section 6, Monroe Township.

Shelby County—The Morristown Gas Co. has recently brought in two fair wells in Hanover Township.

Spencer County—The Big Six Oil Co., which was drilling on the G. A. Grass farm in Huff Township, abandoned and plugged their well. Ben Robinson and others have plugged both tests on the A. C. Huff farm in Section 18, same township. Eastern Gulf Oil Co. got a dry hole at 1,018 feet in their Edwin Schriefer farm No. 1. Randall and Sharp are drilling the third well 400 feet south of the No. 1 on the Leo Strassell lease in Section 1, Ohio Township.

Sullivan County—Burns & Carye are making a location for a wildcat test on the Brocker place in Gill Township, southwest of New Lebanon. Seitz and others will shoot their second well on the G. W. Buff lease in Section 4, Gill Township. No. 5 Alex Raley, drilled by Harry Knox and others in Section 33, Turman Township, produced only 2 bbls. from 802 feet. After five weeks spent trying to fish out some bursted casing all but one joint has been removed from No. 4 C. W. Scott in Section 7, Fairbanks Township, owned by Scott, Whitlock & Morris. It is a 30-bbl. well, but the shot burst the casing. Fred Bay's shallow gas test, the No. 2 Morris Unger, in Gill Township, was abandoned a dry hole.

Vigo County—The Siosi Pool is now the scene of perhaps the greatest activity in the State. New wells are attempting to extend the field both laterally and horizontally. In the north end of the field, the Ohio Oil Co. is 1,850 feet down on the Cease Piety tract, where it is drilling an offset to the Riggs No. 7, a recently completed producer. Hammill & Dill are having more bad luck in their Ross Prevo test in Section 32. One joint of 8-inch casing collapsed, breaking the cable, and they are now fishing. Siosi has had several rigs cleaning out wells which have been off the production list. No. 4 Riggs was abandoned. No. 7 Riggs was completed a 60-bbl. well at 2,212 feet. No. 8 Riggs, Siosi's deep test, is below 2,700 feet and going slower. The work was delayed a little until a new cable arrived. It has been rumored that a new lower pay has already been discovered beneath the two horizons which are producing at present. Those are the Corniferous limestones, and the Schoharie formation, both of which are Devonian in age, although they have been called the Niagara. The new pay is probably Silurian in age, and may be a part of the Niagara series of formations. Siosi is down 600 feet in the No. 9 Riggs, which is to offset the test being drilled on the Cease Piety tract. Same company is also drilling a third well on the Lennie Thomas farm. Pearce and others are putting the F. E. Shattuck No. 4 on the jack. It has been pumping 400 bbls. off the beam from a depth of 2,236 feet.

Lake County—The Dome Oil Co. is preparing to start a test near Highland. This is a wildcat location, as no oil has ever been produced in this part of the county.

ILLINOIS

A few scattered wells were completed in various parts of Illinois, while in the extreme western portion there is a falling off in completions in the Dupo Field of St. Clair County, as the town lot drilling proposition is about done. Nearly every lot in the hamlet has a well on it, and further operations will be made in an effort to extend the field in some particular direction from the town to acreage property. In Sugar Loaf Township, of this county, Ellis & Thomas of Owensboro, Ky., drilled in No. 1 on the Hamill lot in East Carondalet, in Section 24, and got only a 2-bbl. producer, but the well has a very fair gas volume at from 525 to 565 feet. Same parties' No. 4 H. Monsette, NE Section 28, same field, produced 25 bbls. from 415 to 435 feet. Robinson and others' No. 1 Henry Dixon lot, SE Section 21, pumped 2 bbls. from 532 to 560 feet. Donaway and others got a dry hole in No. 1 on the Tim Arnold lot, same section, from 640 to 690 feet. In the Caya tract of the common fields of Cahakea, Kolb and others' No. 1 on the L. J. Jarvis lot, Section 21, was dry at from 990 to 1,150 feet. H. & M. Operating Co. abandoned No. 1 William Shellenberger lot, SE Section 21, Sugar Loaf Township, as it was too light to pump.

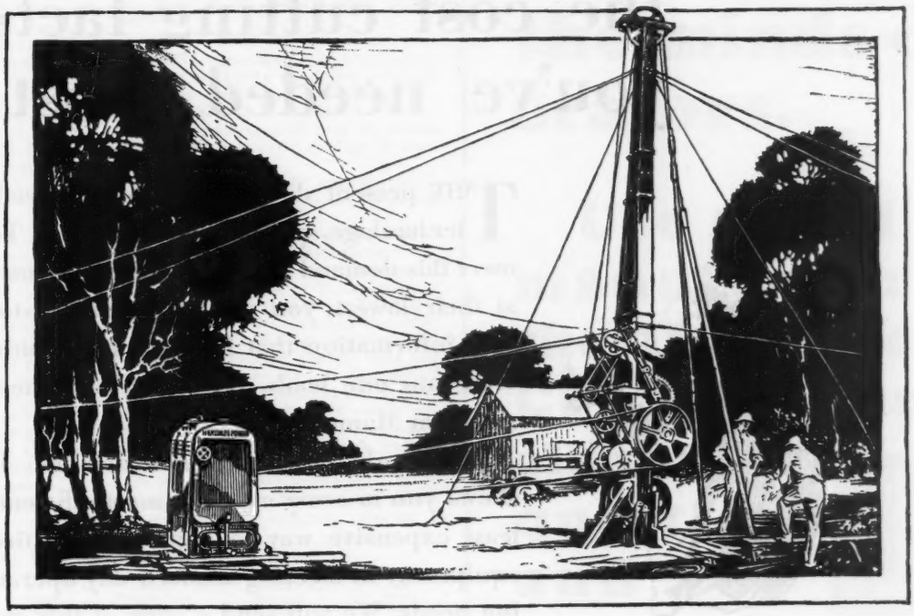
In the Waterloo Field, Columbia Township, Monroe County, in the southwestern part of the State the Ohio Oil Co. abandoned wells as follows: No. 1 Christian Gummersheimer, SW Section 35; No. 3 Christian Gummersheimer, NW Section 2; Nos. 1, 2, 3, 4, 5, 6, 7 and 8 H. Kolmer, NW Section 2; Nos. 1, 2, 3. 4, 5, 6, 7, 8, 9, 10 and 11 Anton Gaertner, NW Section 2, and Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 R. Frierdick, SW Section 35, making a total of 31 wells. which were all old Trenton Rock producers.

In the Allendale Field of Wabash Township, Wabash County, Foreman and Miller, drilled a dry hole in the SW cor. of the C. Payne farm, SW Section 10, at 1,700 feet.

Stohr Brothers drilled No. 10 in the NW cor. of the Rella Montgomery farm. NW Section 4, Casey Township, Clark County, getting an 8-bbl. pumper.

In Prairie Creek Township, Crawford County, the Ohio Oil Co.'s No. 3 well. 660 feet from the north and south lines of the Clara Lamb farm, NE Section 26. the well doing an initial of 25 bbls. at 1,011 feet. J. F. Bolinger's test in the SW cor. of the J. P. Evans farm, NW Section 36, same township, pumped 25 bbls. at 1,000 feet, and C. C. Watson's

Hercules Power Operates Lease Maintenance Machine



For cleaning clogged wells; pulling rods, tubing and casing; and for drilling wells deeper, Hercules Engines are specified for the new "Type K" lease maintenance machine developed by the Star Drilling Machine Co.

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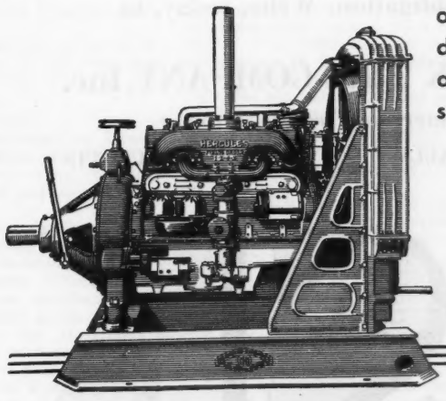

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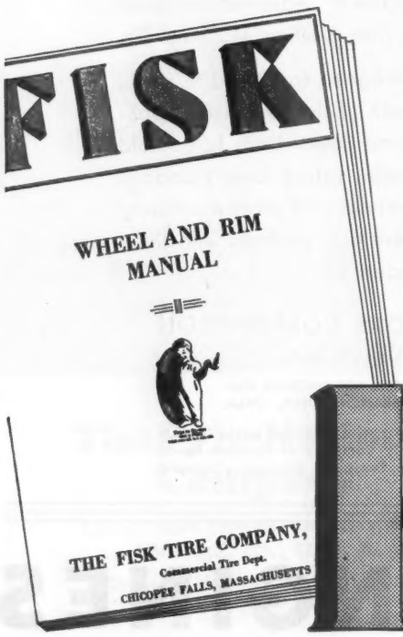


FISK

No. 8 well, 1,000 feet from the north line and 1,250 from the east line of the A. E. Joseph farm, SW Section 23, pumped 5 bbls. from a depth of 875 feet. In Robinson Township, the Warner-Caldwell Oil & Gas Co.'s No. 6 well, 800 feet from the north line and 620 from the east line of the J. and H. Cortelyou farm, NE Section 6, pumped 5 bbls. from 1,003 feet.

COLOMBIAN EXPLAINS PROPOSED OIL LAW

(Continued from Page 76)

own petroleum through any such lines but shall pay the established tariff.

At the termination of the pipe line contract the Government shall have the right to take over the property, paying only the value of the elements which are not fixed to, or in the ground, appraisal to be by experts as in the case of abandonment of a lease.

Note: It is contemplated that at some place in the law there will be one general clause giving the Government full authority to make and enforce regulations to carry out the terms and purposes of all clauses of the law, together with similar powers of access and inspection.

Payment of Royalty

(A). There should be taken into account in fixing the type of royalties, the distance of the deposits from the port of exportation.

(For: Holland and Gonzales Cordero.)
(Against: Bain and Iancoulesco.)

(B). The Government should have the option to take its royalty at the place of production or the maritime port of exportation.

(C). In case that the Government wishes to take its royalty at the place of production the type of royalty shall be 12½ per cent whatever the distance of the place of production to the sea.

(For: Bain, Gonzalez, Iancoulesco.)
(Against: Holland.)

Or according to the following scale:

(Based on Average Daily Runs to Tanks on Entire Lease)

	Barrels Per Day	Rate	Total Production	Cumulative Royalty in Barrels	Actual Rate on Total
First	10,000	6%	10,000	600	6%
Second	10,000	12½%	20,000	1,850	9.25%
Third	10,000	15%	30,000	3,350	11.16%
Fourth	10,000	17½%	40,000	5,100	12.75%
Fifth	10,000	20%	50,000	7,100	14.20%
Sixth	10,000 and over	25%	60,000	9,350	15.58%
Continued upward in the same ratio, a total production of 100,000 bbls. per day would yield a net royalty of					19.6%

(D). In case the Government decides to take its royalty at the coast the rates shall be:

1. For points of production within 200 kilometers of the coast 10 per cent.

2. For points of production more than 200 kilometers and less than 500 kilometers from the coast 8 per cent.

3. For points of production situated more than 500 kilometers from the coast 6 per cent.

(E). Election of the type and terms of royalty shall be made at the time the concession is given and fixed in the agreement.

SUMMARY

For the Project of Petroleum Law Agreed Upon by the Foreign Experts

1. The state as well as any company has the right to build and operate pipe lines and refineries.

2. It is not advisable for the state to establish refineries except in the interior where it is difficult to transport or obtain products from other refineries.

3. Refining of crude petroleum as a consequence of the above in the country should be free, but the Government should have the right to require certain conditions of refineries built at the sea coast when the internal consumption of the country warrants it.

4. Any one wishing to establish a refinery in the country on public or private land should obtain a permit from the Government, which will be given if the applicant agrees to abide by official regulations, and if the land proposed to be used does not belong to the national reserves or is such a site as in the judgment of the Government may affect the national economy.

5. The Government has the right to prohibit the installation or operation of a refinery where it will affect the public health.

6. The requirements as to employment of Colombians in transportation and refining operations shall be the same as for exploitation companies.

7. The Government has the right to require the installation of standard accurate methods of measurement and standard apparatus, and to inspect and check these to insure proper operation. The Government also has the right to examine and check the books of the companies.

8. In those cases when the Colombian crude has no open market, and when no crude sold in the open market is suitable for comparison, then the following rule should be adopted for determination of price: The price of crude shall be in proportion as the price of their refined products.

Bain Opposes

In paying royalties to the Government the latter shall have the option to collect at the sea coast or at the well.

(Mr. Bain only in opposition.)

The Government shall have the option of taking its royalty in kind or in cash.

(Unanimous.)

In fixing the royalty payable to the Government, distance from the sea should be taken into account.

(Bain and Iancoulesco opposed. Holland and Gonzales Cordero favored.)

The companies shall furnish storage facilities at the coast or in the place of production for government royalty oil free for not to exceed 30 days, and thereafter at the rate of 1 centavo per barrel per month. The royalties for dry gas and natural gas gasoline shall be: Dry gas, if sold or used for industrial purposes, 5 centavos per 1,000 cubic feet, and 1 centavo per 1,000 cubic feet for that which shall be wasted. Merchantable natural gasoline obtained by any process, on 1/30 the part, the payment shall be 10 centavos per American standard gallon, but whenever the company obtains a higher price that same price shall be paid for the royalty.

All companies in the petroleum industry shall offer for sale in Colombia at least 20 per cent of any shares they shall issue at the issue price.

Petroleum companies shall employ in their administrative, technical and clerical personnel (combined) at least 10 per cent Colombians; after 5 years from the date of their contracts such companies shall employ 25 per cent of Colombians in these classes.

1. The total area that may be leased to any one company in various concessions shall be 100,000 hectares; any invasion of this by ownership or transfer of shares or other means shall be cause for cancellation.

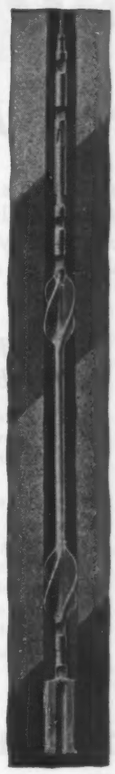
2. Royalties shall be paid on all oil, gas and natural gasoline; allowance shall be made for all the oil and gas which is necessarily used for production purposes and camp use; provided that the company shall be obliged to use dry gas preferentially.

Cancellation

3. The Government shall have the right to cancel concessions for failure to fulfill the obligation of the concession or any feature of the contract. When the failure is not of sufficient gravity to warrant cancellation of the contract the Government shall have power to impose a fine of not more than $1,000 for each offense. For any violation of the regulations or the conditions of the concession relative to technical points operations may be stopped for any period not longer than 10 days at the option of the Government. When each stoppage is for a period of more than 10 days the concessionnaire may appeal from this order of

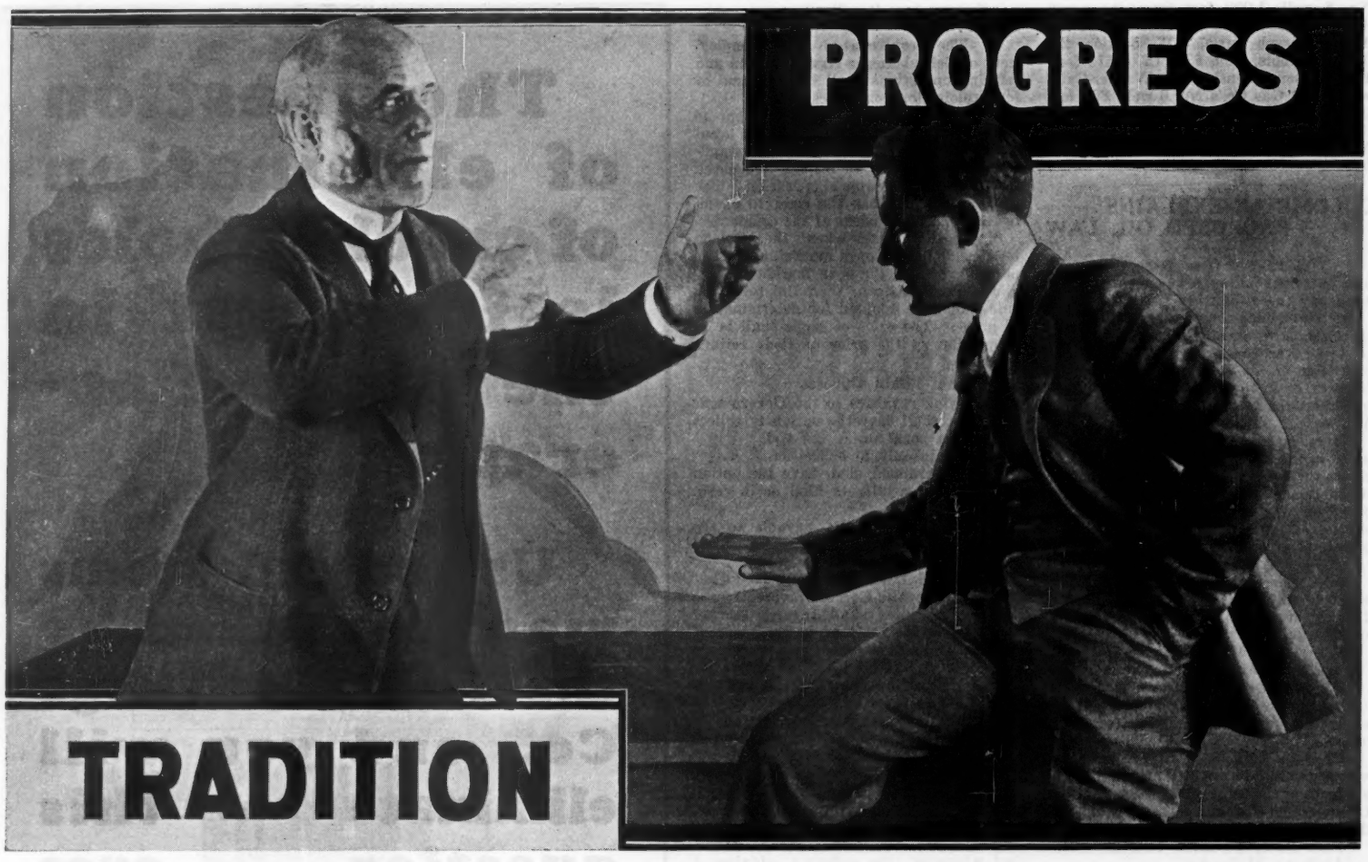
The question of elimination of crooked holes is foremost in the minds of operators.

Use spiral stems manufactured by the Titusville Forge Co., and you will eliminate this question once and for all.



Jaques Drilling Connections

TITUSVILLE FORGE COMPANY
TITUSVILLE, PENN.



"Here, Lad—

You're always telling me what you HEAR about Lincoln welders on pipe line work. You should believe only half you hear about anything. Why don't you go and SEE what they're doing?"

The Lincoln "Stable-Arc" Welder

—welds easier
—makes better welds
—permits greater output

because of the steady uniform arc throughout entire welding range, which is the result of:

Variable voltage design
Laminated magnetic circuit
Separately-excited generator field
Double control of welding heat
All steel construction

No other welder has all these features.

"No, Pop—

I don't have to. They came to me.

When I attended the International Petroleum Exposition in Tulsa, they had a demonstration there of 'Stable-Arc' welders in the actual work of welding a line.

It was even better than seeing it in field work because experts were there to answer all questions—or rather to let the machine answer them.

They had all the latest improvements showing how contractors can put the last ounce of strength into a weld and to extract the last penny of profit.

After seeing it at work, all I've heard about Lincoln machines being the fastest, most used, and best on pipe line work has been as you say, 'only half the story'—the other half being that it's a fine organization to do business with—especially for contractors who have to be close to an organization.

The only trouble I see in believing only half we hear is that most people believe the wrong half."

The Lincoln Electric Co., Dept No. 26-11, Cleveland, Ohio

W-118

"Stable-Arc"
LINCOLN WELDER

the Government and be indemnified in case of error.

When the differences between the Government and the concessionnaires refer to technical or semi-technical points the dispute shall be submitted to experts chosen from a list of experts submitted by the Colombian Society of Engineers.

Proposed by Doctor Iancoulesco and Approved by the Other Experts

1. The Government shall require all the companies exploiting petroleum fields to use those methods which will recover the greatest amount of gas and oil that the best technology permits.

2. The Government reserves the right to prohibit in the future the use of crude petroleum as a fuel. It is recognized that this would be highly advantageous but that actual conditions of industry do not permit its present application.

3. All companies in Colombia in any branch of the petroleum industry shall maintain a legal residence in the country and designate a legal representative.

Thomas H. Holland.
S. Gonzales Cordero.
Dr. Aurel Iancoulesco.
H. Foster Bain.

MICHIGAN FIELDS

(Continued from Page 66)

Dundee at 2,007-16 feet. The Reliable Oil & Gas Co.'s No. 1 Coleman-Valentine well, SW NW, Section 5-10-16, was the second largest at 100 bbls. estimated. It was deepened from the upper Traverse to 1,922 feet in the lower Traverse.

A. S. Cochran's No. 1 Charles I. Giles, NE SW, Section 6-10-16, made 50 to 75 bbls. initial in the Dundee at 2,052-59 feet.

The Henley Oil Co. completed Nos. 3 and 4 Jacob Koning. No. 3, estimated good for about 5 bbls. a day, was plugged and abandoned at 2,025 feet. No. 4 Koning is estimated a 50-bbl. initial pumper, maximum depth 2,023 feet.

The Simplex Oil Co.'s No. 1 James and Anna Dow, NW SE, Section 5-10-16, Muskegon Township, plugged back from the Dundee and even lower, was shot in the upper Traverse and made about a 50-bbl. well at 1,660-76 feet. It had been drilled to 2,202 feet as a partial deep test below the Dundee. It was a good 75-bbl. well in the Dundee.

The Peerless Oil Co. finally decided to plug No. 1 Gimino, SW NW, Section 22-10-16, near the Continental Gas & Oil Co.'s wells out Jackson Avenue road southeast of the body of the field. The total depth is 1,953 feet.

The Lima Oil Corp. announced it would deepen its No. 2 Louis P. Haight, NE SW, Section 9-10-16, which has been a producer of oil in the upper Traverse. It is on the river flats.

The Grand Rapids Oil Co. has started to deepen its No. 1 Henry Smeltekop, NW SW, Section 5-10-16, from the upper Traverse to the lower Traverse or Dundee. The Section Ten Oil Co. is considering deepening its No. 1 J. J. McDermott, SW SW, Section 10-10-16. It has been a small well in the upper Traverse.

The Michago Oil & Development Co. is rigging up for No. 2 John B. Nichols, SW NE NW, Section 8-10-16, the only new location in the field.

Kent County

Dillon and McFrederick's No. 1 James Bullis, NE NE NW, Section 28-8-10, Ada Township, Kent County, was dry in the Dundee formation when salt water was struck at 2,683 feet. It has been plugged.

Muskegon County

Buchanan and Frye's No. 1 Fruitvale, SW SE, Section 6-12-16, Blue Lake Township, is the only wildcat drilling in Muskegon County. It has reached a depth of more than 2,000 feet after casing at 1,902 feet to shut off Traverse water. The Dundee limestone is not expected until about 2,200 feet or deeper.

Oceana County

The Oceana Oil Corp.'s No. 1 Vanderwaal, north of New Era, SW NE, Section 35-14-17, Shelby Township, is the deepest wildcat in Oceana County. Edward DuVall is drilling at 630 feet on his new Schultz well, NW NW, Section 12-15-18, Golden Township, Oceana County. His last well, No. 1 Fiel, SW NE, Section 31-15-18, Golden Township, was plugged back to the upper Traverse from 2,230 feet and shot but failed to make a producer. It was purchased from Mr. DuVall by the Red Rock Oil Co.

The Sankey Oil & Gas Co.'s No. 1 G. A. Beam, NW SE, Section 22-14-15, near Hesperia, Newfield Township, is still shut down at 2,680 feet.

C. J. Sipple's No. 1 Iroquois, SE NW, Section 35-13-17, Grant Township, near Rockdale Inn, is fishing for a bit at 2,220 feet. It has been fishing for several weeks.

Newaygo County

Drilling of the Hervey Syndicate's No. 1 Orville E. Atwood well, NE NE, Section 31-11-13, Ashland Township, to the Dundee after it was dry in the upper Traverse at 2,224 feet was started last week. The same syndicate is drilling at more than 1,200 feet on its No. 1 Baumgartner, NE NE, Section 33-12-13, Garfield Township.

Reaming of the Pennsylvania Oil & Gas Co.'s No. 1 Miller, SE SE, Section 34-14-11, Goodwell Township, to a depth of 2,350 feet is about completed. It will be drilled into the upper Traverse.

The only other well drilling in Newaygo County is the Atlantic Exploration Co.'s No. 1 William Brydges, NW SW, Section 12-11-13, Ashland Township. The Newaygo-Bates well in Sherman Township, is shut down at 3,000 feet.

Ottawa County

The hole is caving at 4,786 feet in the Wright Oil Co.'s No. 1 Joseph Kluting, SW NW, Section 10-8-13, Wright Township, Ottawa County. Drillers are keeping it cleaned out as well as possible. It is the deepest test in Ottawa County and in western Michigan. The Michigan Petroleum Co.'s No. 1 C. E. Moe, SE SE, Section 6-9-13, Chester Township, near Ravenna, is more than 4,000 feet deep.

Other Wildcats

Two new wildcat locations, one in Cass County, southwestern Michigan, and the other in Sanilac County, southeastern Michigan, were announced. V. M. Voorhess, Muskegon contractor, is moving in a rig for the Berrien Petroleum Syndicate's No. 1 Franz, SE SE, Section 3-7s-16w, Howard Township, Cass County.

The other new location is the Sanilac Prospecting & Development Co.'s No. 1 Lizzie Murray, in the NW fractional Section 16-13n-6e, Forester Township, Sanilac County.

DRESSER INCREASES DIVIDEND

NEW YORK, Nov. 16.—At a meeting of the directors of the S. R. Dresser Manufacturing Co. of Bradford, held in this city the dividend on Class A stock of the Dresser company was increased from $3 to $3.50 per share per year and the dividend on Class B stock of the company was increased from $1.50 to $2 per share per year.

This action was taken in view of the excellent showing made by the concern, and the outlook for next year is equally promising.

The plant in Bradford is gradually being enlarged to provide facilities for the ever increasing business of the company.

DAVID S. EWING DEAD

David S. Ewing, for seven years a member of the board of directors of the American Petroleum Institute, representing the Pacific Coast Production Group, died October 30 at his home in Fresno, Calif. He was for many years a producer of oil in the San Joaquin Valley, and a lawyer by profession.

CONGER REYNOLDS NAMED

The Standard Oil Co. of Indiana has appointed Conger Reynolds director of public relations. He will serve as liaison officer between the company and the general public. Mr. Reynolds succeeds George M. Cooke.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 60)

CADDO PARISH—OIL CITY

Arrow Synd.'s No. 1 Pender, 200 ft. N, 440 ft. E, SW cor., NW NW, Sec. 11-20-15 ..... Bailed dry 2,214 ft; corrected depth 2,218 ft.

W. D. Chew's No. 5 fee, Sec. 33-21-16 ..... Completed 25-bbl. pumper 2,330 ft.

Gulf Ref. Co.'s No. 20-A Levee Board 1,570 ft. S, 268 ft. W, NE cor. NW, Sec. 34-21-16 ..... Drlg. 1,830 ft.

Magnolia Pet. Co.'s No. 19 Doan-Thigpen, 330 ft. N, 990 ft. W, SE cor. Sec. 6-20-15 ..... Drlg. 2,376 ft.

Shreveport Oil Corp.'s No. 1 Guy, NW NE, Sec. 33-21-15 .. Abd. 2,300 ft.

The Texas Co.'s No. 72 Levee Board, 725 ft. N, 210 ft. E, SW cor. SE, Sec. 27-21-16 ..... Rigging up.

J. C. Tippett's No. 1 Levee Board, 1,120 ft. W, 200 ft. N, SE cor. SW, Sec. 26-21-16 ..... S.W. 1,860 ft; plugging back to 1,854 ft.

CADDO PARISH—LEWIS

Snake Creek Oil Co.'s No. 1 Levee Board, SW NW, Sec. 9-21-16 ..... S.W.; abd. 2,328 ft.

CLAIBORNE PARISH HOMER

Oakes et als' No. 1 Richardson, NE SE, Sec. 19-21-7 .... S.D. 1,700 ft.

PINE ISLAND

E. W. McGoldrick's No. 1 Dreyfuss-Lane, 515 ft. N, 300 ft. E, SW cor. NE, Sec. 15-21-15 ..... Rigging up.

Simplex Oil Co.'s No. 7 Hunsicker, 670 ft. W, 400 ft. S, NE cor. SE, Sec. 15-20-15 ..... Arranging test 2,319 ft.

LASALLE PARISH—URANIA

Air Lift Oil Co.'s No. 8-A Hardtner, Sec. 7-10-2e (no check) ..... Drlg. 1,200 ft.

Ark. Fuel Co.'s No. 5 Urania, 200 ft. S, 200 ft. E, NW cor. NE SE, Sec. 24-10-1e ..... Reaming to set 13⅜-in. at 1,560 ft.

Kinney, Hardtner & Randall's No. 1 Kinney, SW SW, Sec. 7-10-2e ..... S.D. 1,570 ft.

Philp et als' No. 1 Urania, SE cor. NE NE, Sec. 1-10-1e.. Tested 500,000 ft. gas and sanded up; C.O.; setting liner to test; T.D. 730 ft.

Randall et als' No. 3 Urania, Sec. 1-10-1e ..... S.D. 675 ft.

Trio Oil Co.'s No. 2 Urania, NE cor. SW SW NW, Sec. 19-10-1e ..... Rigging up.

MOREHOUSE PARISH

Bahan & Bahan's No. 1 Feazel, 330 ft. S, 330 ft. W, NE cor., Sec. 3-20-4 ..... Completed; waiting test; estimated 4,000,000 ft. gas 2,135 ft.

J. S. Herkness' No. 11 Bowles, 4,620 ft. S, 1,950 ft. E, NW cor. Sec. 18-20-5 ..... Set 6-in. 2,157 ft.

J. S. Herkness' No. 12 Bowles, 3,393 ft. E, 3,300 ft. S, NW cor. Sec. 18-20-5 ..... Location.

Magnolia Pet. Co.'s No. 5 U. S., 630 ft. N, 330 ft. W, SE cor. NE SW, Sec. 29-21-5 ..... Completed Nov. 2; gauged 7,000,000 ft. gas 2,363 ft.

Southern Carbon Co.'s No. 13 Tensas, 660 ft. S, 660 ft. E, NW cor., Sec. 2-20-4 ..... Set 6-in. 2,177 ft.

Southern Carbon Co.'s No. 13 Tensas, 660 ft. S, 1,320 ft. W, NE cor. Sec. 4-20-4 ..... Derrick.

Trousdale & Wright's No. 2 Kate Cole, 240 ft. W, 1,311 ft. S of point where N line of Sec. 42 joins dividing line of Secs. 8 and 9 in Sec. 42-18-4 ..... Derrick.

United Carbon Co.'s No. 2 Patton, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 2-20-4 ..... Location.

United Carbon Co.'s No. 3 Patton, 660 ft. W, 660 ft. S, NE cor. SE, Sec. 2-20-4 ..... Location

OUACHITA PARISH

Amalgamated Carbon Co.'s No. 3 Cole, 743 ft. E, 703 ft. S, NW cor., Sec. 43-19-4 ..... Rigging up.

Amalgamated Carbon Co.'s No. 3 Cole, 1,616 ft. E, 721 ft. S, NW cor., Sec. 43-19-4 ..... Set 6-in. 2,111 ft.

Austin & Jordan's No. 1 Albright, 1,597 ft. E, 744 ft. N, common cor. Secs. 10, 9 and 13 in Sec. 13-18-3 ..... Rigging up.

Austin & Jordan's No. 2 McGuire, 2,561 ft. E, 844 ft. N, SW cor., Sec. 62-18-3 ..... Completed Nov. 8; estimated 1,500,000 ft. gas.

Chauvin Gas Co.'s No. 1 Slagle Johnson, 645 ft. S, 567 ft. W, NE cor., Sec. 49-18-4 ..... Completed Nov. 10; estimated 1,500,000 ft. gas 2,256 ft.

Chauvin Gas Co.'s No. 2 Slagle Johnson, 3,498 ft. S, 26 ft. E, NW cor. Sec. 49-18-4 ..... Began drlg. Nov. 3; set 12-in. at 158 ft; T.D.

Chauvin Gas Co.'s No. 3 Slagle Johnson, 2,539 ft. S, 55 ft. E, NW cor. Sec. 47-18-4 ..... Location.

Chauvin Gas Co.'s No. 4 Slagle Johnson, 4,505 ft. S, 257 ft. E, NW cor. Sec. 47-18-4 ..... Location.

Chauvin Gas Co.'s No. 2 W. Va., 186 ft. N, 67 ft. W, NW cor., Sec. 42, in Sec. 3 ..... Location.

Chauvin Gas Co.'s No. 3 W. Va., 1,980 ft. S and W, NE cor., Sec. 3-18-4 ..... Location.

Chauvin Gas Co.'s No. 4 W. Va., 1,078 ft. N, 294 ft. W, NE cor., Sec. 49, in Sec. 7 ..... Location.

Chauvin Gas Co.'s No. 5 W. Va., 2,046 ft. S, 1,790 ft. W, NE cor. SE, Sec. 6-18-4 ..... Location.

Greenwood Prod. Co.'s No. 3 Phillips, 660 ft. N, 198 ft. W, SE cor., Sec. 18-19-4 ..... Completed Nov. 2; 3,000,000 ft. gas 2,184 ft.

Hope Producing Co.'s No. 1 Fairbanks, 660 ft. N, 624 ft. E, SW cor. SE, Sec. 25-20-4 ..... Tested 500,000 ft. gas; arranging to deepen 2,160 ft.

Hope Producing Co.'s No. 2 Fairbanks, 1,876 ft. E, 628 ft. N, SW cor. SE, Sec. 25-20-4 ..... Location.

Hope Producing Co.'s No. 3 Fairbanks, 1,876 ft. E, 628 ft. S, NW cor. NE, Sec. 36-20-4 ..... Location.

G. E. Jordan's No. 1 Anding, NW NE, Sec. 18-18-5 ..... Plugged back to 2,334 ft; T.D. 2,480 ft.

Jordan Drlg. Co.'s No. 5 Cole, 630 ft. S, 662 ft. W, common cor. Secs. 1, 2 and 35, in Sec. 35-18-3 ..... Completed Nov. 10; estimated 2,000,000 ft. gas 2,192 ft.

Mack & Pipes' No. 2 Slagle-Johnson, 446 ft. S, 649 ft. W, northwesterly cor., Sec. 47, in Sec. 48-18-4 ..... Location.

Mack & Pipes' No. 2 Johnson, Sec. 48-18-4 ..... Location.

Mack & Pipes' No. 1 Burke est., 654 ft. N, 497 ft. E, SW cor., Sec. 6-18-5 ..... Began drlg. Nov. 9; 12-in. 192 ft; 8-in. 791 ft.

Magnolia Pet. Co.'s No. 2 fee 401, 660 ft. S, 660 ft. E, NW cor., Sec. 2-18-3 ..... Derrick.

Magnolia Pet. Co.'s No. 4 U. S., Sec. 20-19-5; reported completed July 31, in error ..... Tested 1,000,000 ft. gas at 515 lbs. rock pressure; set liner 2,528 ft; bailed dry; plugged back to 2,200 ft; estimated 500,000 ft. gas; W.O; waiting orders 2,528 ft.

New Process Carbon Co.'s No. 2 Cole, 1,971 ft. E, 1,820 ft. N, SW cor. Sec. 35-20-4 ..... Began drlg. Oct. 24; cmtd. 12-in. 187 ft; drlg. shale 2,111 ft.

Palmer Corp.'s No. 1 Cagle, 1,964 ft. S, 476 ft. E, NW cor., Sec. 7-18-5 ..... Arranging to deepen 2,386 ft.

J. E. Sandridge, Jr.'s No. 1 W. E. Montgomery, 565 ft. N, 410 ft. E, SW cor., Sec. 18-19-5 ..... Completed Oct. 31; gauged 13,000,000 ft. gas 855 lbs. pressure; T.D. 2,233 ft.

Son Car Co.'s No. 14 Hank, Sec. 43-20-4 ..... Location.

Southern Carbon Co.'s No. 54 fee, 660 ft. N, 674 ft. W, SE cor. NE, Sec. 18-19-4 ..... Shut down 2,621 ft.

Southern Carbon Co.'s No. 4 Phillips, 660 ft. S, 660 ft. E, NW cor., Sec. 8-19-4 ..... Rigging up.

Stubbs, trustee's No. 1 Linton Stubbs, 203 ft. E, 121 ft. S, Sec. 19-19-4 ..... Completed Nov. 11; estimated 5,000,000 ft. gas 2,180 ft.

Trousdale & Wright's No. 1 Kate Cole, 296 ft. S, 47 ft. W, common cor. Secs. 8, 9 and 42 in Sec. 42-18-4 .... Completed Nov. 10; estimated 3,000,000 ft. gas 2,130 ft.
Trousdale & Wright's No. 2 Kate Cole, Sec. 42-18-4e .... Location.
United Oil & Nat. Gas Products Co. of La.'s No. 5 Guthrie, 6,896 ft. N, 6,022 ft. W, cor. Secs. 49, 26, and 25, Sec. 49-20-5 .... Derrick.
United Oil & Nat. Gas Products Co. of La.'s No. 3 Cole, 660 ft. S, 594 ft. E, C, Sec. 26-20-4 .... Derrick.
United Oil & N. G. Products Co.'s No. 1 Spade, 660 ft. N. 660 ft. W, SE cor. NE, Sec. 35-19-3 .... Location.
United Carbon Co.'s No. 5 Spades, Sec. 35-19-3e .... Location.
W. Va. Lumber Co.'s No. 1 Bullock, Sec. 25-18-5 .... Drlg. 2,124 ft.

RED RIVER PARISH

Joe Danciger et als' No. 1 Pickett, 6,621 ft. S, 2,623 ft. W, NE cor., Sec. 16-13-11, in Sec. 33-13-11 .... C.O. 2,400 ft; T.D. 2,555 ft.
Root Refineries, Inc.'s No. 1 Home State & Savings Bank, 330 ft. N, 330 ft. W, C, Sec. 8-13-10 .... Oil show 2,570 ft; drill stem test, S.W; cored sand showing gas 2,598 ft; S.D. 2,667 ft.
Triple Oil Co.'s No. 1 W. M. Pollock, Sec. 33-13-11 .... Cmtd. 6⅝-in. 2,456 ft.; W.O.S.R. 2,470 ft.

RICHLAND PARISH

Ark.-La. P. L. Co.'s No 1 Chenault, 1,980 ft. W, NW, C, SE SE, Sec. 2-16-6 .... Cmtng. 9-in. 2,320 ft.
W. C. Feazel's No. 3 Brown, 1,940 ft. W, 185 ft. N, SE cor. Sec. 32-16-6 .... Completed Nov. 10; 46,800,000 ft. gas, 705 lbs. rock pressure; 2,435 ft.
W. C. Feazell's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor. Sec. 11-16-6 .... Location.
W. C. Feazell's No. 1 E. L. Wilson, 647 ft. N, 241 ft. E SW cor. NW, Sec. 31-16-6 .... Began drlg. Nov. 11; 50 ft.
Hope Prod. Co.'s No. 1 J. H. Hemler, 660 ft. S, 660 ft. W, NE cor., Sec. 11-16-6 .... Completed Nov. 12; 49,000,000 ft. gas, 820 lbs. rock pressure, 2,450 ft.
Hope Prod. Co.'s No. 1 L. R. Hemler, 600 ft. S, 495 ft. W, NE cor., Sec. 22-16-6 .... Cmtng. 6-in. 2,300 ft.
Hope Prod. Co.'s No. 1 Thomason, 3,366 ft. W, 660 ft. S, NE cor., Sec. 11-16-6 .... Completed; estimated 12,000,000 ft. gas 2,450 f..
Industrial Gas Co.'s No. 1 Boughton, N 85 degrees, 10 min. W, 4,458 ft., 865 ft. S, NE cor. Sec. 1-16-6 .... Began drlg. Nov. 1; cmtng. 12½-in. 126 ft; drlg. 1,025 ft.
Industrial Gas Co.'s No. 1-A J. H. Hemler, 1,431 ft. E, 460 ft. S, NW cor. Sec. 12-16-6 .... Drlg. shale 1,896 ft.
Industrial Gas Co.'s No. 1 J. R. Hodge, 3,259 ft. E, 1,320 ft. S, center Sec. 7-16-7 .... Began drlg. Nov. 4; 50 ft.; 12½-in. 166 ft.
Industrial Gas Co.'s No. 1 Rayville State Bank, 660 ft. N, 660 ft. E, center Sec. 12-16-6 .... Cmtd. 9-in. at 910 ft; coring shale 1,165 ft.
Industrial Gas Co.'s No. 1-C Sartor, 536 ft. N, 1,333 ft. E, SW cor. NW, Sec. 21-16-6 .... Began drlg. Oct. 26; cmtd. 12½-in. 154 ft.
International Gas Products Co.'s No. 1 Boughton, Sec. 33-16-6 .... Drlg. shale 1,980 f..
Magnolia Pet. Co.'s No. 1 Hatch, 180 ft. N, 660 ft. W, SE cor. NE SE, Sec. 2-15-5 .... Dry and abd. 3,167 ft.
Magnolia Pet. Co.'s No. 4 C. M. Noble, 400 ft. S, 660 ft. W, NE cor. SE NE, Sec. 35-16-5 .... Location.
Magnolia Pet. Co.'s No. 5 C. M. Noble, 600 ft. S, 600 ft. W, NE cor. NW, Sec. 36-16-5 .... Set. 8⅝-in. 2,302 ft.
M. L. Meredith's No. 1 Holdness, 1,980 ft. S, 990 ft. W, NE cor., Sec. 15-16-6 .... Rigging up.
Northern La. Nat. Gas Co.'s No. 4 Boykin, Sec. 20-17-14 .... Killing cratered No. 1 Boykin; T. D. 2,398 ft.
Northern La. Nat. Gas Co.'s No. 1-A Colvin, 1,320 ft. E 370 ft. S, center Sec. 34-17-6 .... Drlg. sand and shale 3,123 ft.
Northern La. Natural Gas Co.'s No. 1 Pipes, 2,433 ft. S, 581 ft. E, center Sec. 34-17-6 .... Drlg. rock 1,897 ft.
Northern La. Nat. Gas Co.'s No. 1 A. Purvis, 1,282 ft. S, 183 ft. E. center Sec. 34-17-6 .... Drlg. shale 1,934 ft.
Northern La. Nat. Gas Co.'s No. 1 C. M. Purvis, 1,821 ft. E, 630 ft. S, NW cor. SE NW, Sec. 3-16-6 .... Drlg. gumbo 1,030 ft; 9-in. 903 ft.
Palmer Corp.'s No. 2 Earle, 1,980 ft. N, 1,320 ft. W, SE cor., Sec. 31-17-6 .... Drlg shale 1,232 ft.
Palmer Corp.'s No. 1 Eubanks, 1,100 ft. N, 350 ft. E, SW cor. SE NW, Sec. 26-17-6 .... Drlg shale 2,875 ft.
Palmer Corp.'s No. 4 Rhymes, 660 ft. S, 1,320 ft. W, NE cor. NW, Sec. 28-17-6 .... Plugged back to 2,450 ft; T.D. 3,127 ft.
Southern Carbon Co.'s No. 1 S. R. Humble, 600 ft. N, 600 ft. W, SE cor., Sec. 26-16-6 .... Set 8-in. 815 ft.
United Carbon Co.'s No. 1 Roberts, 1,650 ft. N, 600 ft. W, SE cor., Sec. 21-16-6 .... Set 12-in. 198 ft; 8-in. 915 ft.

SABINE PARISH—PLEASANT HILL

Bridges-Clark Oil Co.'s No. 2 Williams, 2,150 ft. W, 2,000 ft. S, NE cor., Sec. 33-10-12 .... Completed Oct. 31; 487 bbls. at 3,224 ft.
Magnolia Pet. Co.'s No. 4 E. E. Hall, 355 ft. N, 343 ft. W. SE cor. NW SW, Sec. 33-10-12 .... Cmtd. 8⅝-in. 3,141 ft.
Reid Clark and others' No. 2 Moore, 1,600 ft. N, 330 ft. W, SE cor. Sec. 32-10-12 .... Derrick; No. 1 drilled by Selp and others.

UNION PARISH

Bahan & Bahan's No. 1 Bess, 47 ft. S, 64 ft. W, NE cor. NW, Sec. 11-20-3 .... S.D. 130 ft.
Bahan & Bahan's No. 2 Parks, 370 ft. E, 385 ft. S, NW cor. NE SE, Sec. 2-20-3 .... Abd.; blowout 1,525 ft.
J. R. Bahan's No. 1 Fee, 876 ft. W, 145 ft. S, NE cor. NW, Sec. 11-20-3 .... Location.
E. S. Hall's No. 2 Spencer, 317 ft. W, 183 ft. S, NE cor. NW SE, Sec. 2-20-3 .... Set 6-in. 2,076 ft.
Interstate Nat. Gas Co.'s No. 23 fee, 660 ft. S, 660 ft. E, NW cor., Sec. 33-20-3 .... Set 6-in. at 2,137 ft.
Lyons Gas Co.'s No. 1 A. B. Edwards, 722 ft. W, 897 ft. S, NE cor. NW, Sec. 11-20-3 .... Derrick.
Lyons Gas Co.'s No. 1 H. M. Jones, 687 ft. W, 93 ft. S, NE cor. NW, Sec. 11-20-3 .... Set 6⅝-in. at 2,090 ft.

WEBSTER PARISH—COTTON VALLEY

Magnolia Pet. Co.'s No. 1 McCook & Hibbler, C SW SW, Sec. 22-21-10 .... Set 5¾-in. at 6,947 ft.; T.D. 6,965 ft. steel line meas.; expect to bail Nov. 18 or Nov. 19.
Ohio Oil Co.'s No. 45 Bodcaw, 660 ft. N, 600 ft. W, SE cor. SW SW, Sec. 21-21-10 .... Drlg. at 4,431 ft.
Ohio Oil Co.'s No. 46 Bodcaw, 660 ft. N, 660 ft. E, SW cor. SW NW, Sec. 28-21-10 .... Derrick.
Palmer Corp.'s No. 2 Miller, 520 ft. N, 504 ft. E, SW cor. SW, Sec. 28-21-10 .... Drlg. 3,123 ft.
Standard Oil Co.'s No. 3-D Bodcaw, 660 ft. N, 660 ft. E, SW cor. SE NE, Sec. 28-21-10 .... Completed Nov. 11 500,000 ft. gas 4,700 ft.
Standard Oil Co.'s No. 1-E Bodcaw, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 28-21-10 .... Location.
Standard Oil Co.'s No. 1 Thos. Crichton and others, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 22-21-10 .... Drlg. 2,760 ft.

WEBSTER PARISH—SAREPTA AND SHONGALOO

J. W. Clark, trustee's No. 1 L. H. Wise, 1,980 ft. E, 660 ft. S, NW cor., Sec. 30-23-9 .... Completed Nov. 12 25-bbl. pumper 2,754 ft.
Pat Hudson's No. 1 L. S. Gardner, 150 ft. E, 200 ft. S, NW cor. SW NE, Sec. 1-22-11 .... Cmtd. 6-in. 2,734 ft; bailed csg. dry.
Pat Hudson's No. 22 S. Gardner, 300 ft. N, 300 ft. E, center Sec. 1-22-11 .... Drilling.
Pat Hudson's No. 1 B. L. Slack, 330 ft. W, 330 ft. N, SE cor. SW, Sec. 36-23-11 .... Location.
F. E. Estes' No. 2 Pardee, 1,270 ft. W, 50 ft. S, NE cor. NW, Sec. 2-22-11 .... Drlg. 1,800 ft.
Magnolia Pet. Co.'s No. 1 C. O. Bailey, 100 ft. N, 660 ft. E, SW cor. NW NE, Sec. 29-23-9 .... S.D. 2,761 ft.
Magnolia Pet. Co.'s No. 1 N. T. Knight, 330 ft. S, 330 ft. E, NW cor. SE SE, Sec. 33-23-9 .... W.O.S.R. 2,692 ft.
Magnolia Pet. Co.'s No. 2 Scroggins, 330 ft. S, 376 ft. E, NW cor. SW NW, Sec. 1-22-11 .... W.O.S.R. 2,708 ft.
Sarepta Oil Co.'s No. 1 L. S. Gardner, 300 ft. S, 300 ft. W, C, Sec. 1-22-11 .... Did not set casing; rig moved; hole abandoned.
Woodmansee et als' No. 1 Boyd, 200 ft. S, 200 ft. E. NW cor. SE SW, Sec. 3-22-11 .... Abandoned.

ARKANSAS

NEVADA COUNTY

C. F. Steele's No. 1 E. W. Groves, Sec. 31-14-20 .... Shut down.

OUACHITA COUNTY—SMACKOVER

Ark. Nat Gas Corp.'s No. 3 Avera, 330 ft. S, 330 ft. E, NW cor. SE SW, Sec. 35-15-15 .... Completed Nov. 8; gauged 3,275,000 ft. gas with spray oil at 2,023 ft.; 175 pounds rock pressure.
L. H. Hamilton's No. 1 Arnold & Doyle, SE SE, Sec. 23-15-16 .... Standing 400 ft. in fluid; 23 ft. broken sand; T.D. 2,010 ft.
Marine Oil Co.'s No. 7-A Hays, Sec. 4-16-15 .... W.O.S.R. 450 ft. oil, 20 ft. sand; T.D. 2,362 ft
Oil Field Corp.'s No. 10 McKenzie, 265 ft. E, 185 ft. N, SW cor, SE NE, Sec. 36-15-16 .... W.O.S.R. 2,002 ft.
Phillips Pet. Co.'s No. 3 Clayton, NE cor. NW NE, Sec. 34-15-15 .... W.O.S.R. 350 ft.; fluid in hole 37 ft. broken sand; T.D. 2,036 ft.
Simms Oil Co.'s No. 4 Johnson, 330 ft. N, 85 ft. E, SW cor. NE SE, Sec. 34-15-15 .... Arranging to deepen with tools 1,975 ft.
Simms Oil Co.'s No. 5 Johnson, 301 ft. N, 250 ft. W, SE cor. NE SE, Sec. 34-15-15 .... Rig up; workover.
Skelly Oil Co.'s No. 2 Langley, 250 ft. N, 250 ft. W, SE cor. NW SW, Sec. 35-15-15 .... Drlg. 1,600 ft; setting liner; tested 1,250 ft. gas with spray oil 2,014 ft.
Southern Prod. Co.'s No. 1-A Watts, SW cor. SW SE, Sec. 27-15-15 .... Cmtd. 6⅝-in. 2,029 ft.; T.D. 2,034 ft.; W.O.S.R. 2,052 ft.
Standard Oil Co.'s No. 13 Arnold, 200 ft. S, 200 ft. E. NW cor. NE NE, Sec. 26-15-16 .... Began drlg. Nov. 12; drlg. 20 ft.
Standard Oil Co.'s No. 8 Powell, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 34-15-15 .... Cmtd. 6⅝-in. 1,959 ft; cmtd. 278 ft. of 4½-in. 1,978 ft; T.D. 2,017 ft.; cleaning out 2,015 ft.
Standard Oil Co.'s No. 9 Powell, Sec. 34-15-15 .... Cmtd 6-in. 1,971 ft.
J. D. Wingfield's No. 1 Martin, SW cor., Sec. 26-15-15 .... Set 6⅝-in. 2,085 ft; tested little oil and S.W; W.O; T.D. 2,115 ft.

OUACHITA COUNTY—STEPHENS

La. Oil Refining Corp.'s No. 1 Green, 330 ft. S, 330 ft. E, NW cor. Sec. 22-15-19 .... Completed March 28, 1926; 100 bbls. 1,555 ft.; plugged back to 2,300 ft.; arranging set 8¼-in. at 2,214 ft.

UNION COUNTY—CHAMPAGNOLLE

Magnolia Pet. Co.'s No. 1 Schmidt, 300 ft. N, 300 ft. W, SE cor. NW SW, Sec. 5-17-14 .... Tested 15,000,000 ft. dry gas 2,708-15 ft; cmtd. 8-in. 2,708 ft; tested 2,200,000 ft. gas 2,715 ft; coring 3,142 ft.

UNION COUNTY—EL DORADO

Rice et als' No. 1 W. Raltey, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15 .... Spudded July 18; cmtd. 10-in. at 92 ft.

UNION COUNTY—SMACKOVER

Ark. Fuel Oil Co.'s No. 5 Alphin, Sec. 11-16-16 .... O.W.D.D.; perforated csg. 1,960-70 ft.; swabbed dry; filled up 40 ft. oil in hour, W. O.
Foster et als' No. 1 J. V. Spohr, 330 ft. S, 330 ft. W, NE cor. SE SW, Sec. 35-15-16 .... Rig up.
E. M. Jones' No. 1 H. Murphy, 211 ft. S, 211 ft. E, NW cor. Lot 3, NW, Sec. 2-16-15 .... W.F.S.R.; 90 ft. fluid in hole from 17 ft. broken sand; T.D. 1,981 ft.
Lion Oil Ref. Co.'s No. 1 James, CWL, Lot 3, NW, Sec. 6-16-15 .... Cmtd. 6⅝-in. 1,942 ft; drlg. in; bailing to test 58 ft. broken sand; pumping salt water 2,018 ft.
Joe Marr's No. 2 Goodwin, 150 ft. E, 250 ft. N, SW cor., Sec. 3-16-16 .... S.D. 2,470 ft.
Shell Pet. Co.'s No. 1 Carroll, 1,320 ft. W, 330 ft. N, SE cor. NE SW, Sec. 19-18-16 .... Top Nacatoch 2,053 ft.; dry, abandoned; black shale 3,503 ft.
Skelly Oil Co.'s No. 3-A Alphin, 1,320 ft. S, center Sec. 24-16-16 .... Drlg. 1,960 ft.

EAST TEXAS

PANOLA COUNTY

Eureka Nat. Gas Co.'s No. 1 Jeter, 300 ft. S, 300 ft. W, NE cor. John Womack Sur. .... Drill stem test estimated 30,000,000 ft. gas; W.O. 6⅝-in. to set; T.D. 2,960 ft.
S. H. Gardner's No. 5 Brumble, 5,986 ft. E, 4,132 ft. S. NW cor. B. C. Jordan Sur. .... S. D. for water; T.D. 1,000 ft
S. H. Gardner's No. 4 Roquemore, 5,176 ft. E, 4,432 ft. S, NW cor. B. C. Jordan Sur. .... Location.
Magnolia Pet. Co.'s No. 3 T. C. Adams, 550 ft. S, 280 ft. E, NW cor. Jas. Matthews Sur. .... Bailing to test; T.D. 2,850 ft.
Magnolia Pet. Co.'s No. 5 G. C. Tiller, 1,114 ft. W, 303 ft. N, SE cor. Jane Thorpe Sur. .... Drlg. 1,600 ft.
Magnolia Pet. Co.'s No. 6 G. C. Tiller, 393 ft. S, 1,990 ft. E, NW cor. Jane Thorpe Sur. .... Location.
Nat. Gas Prod. Co.'s No. 10 Roquemore, B. C. Jordan Sur. .... Began drlg. Oct. 20; cmtd. 10-in. 42 ft.
Nat. Gas Prod. Co.'s No. 11 Roquemore, B. C. Jordan Sur. .... Rigging up.
Nemours Corp.'s No. 6 G. C. Tiller, 2,330 ft. S, 300 ft. W, NE cor. W. D. Matthews Survey .... Location.
The Texas Co.'s No. 7 G. W. Brumble, 3,415 ft. W, 330 ft. N, SE cor. E. F. Mitcheson Sur. .... Waiting on 6-in. to set; T.D. 2,341 ft.
The Texas Co.'s No. 8 G. W. Brumble, 1,085 ft. E, 330 ft. N, SW cor. John Womack Sur. .... Derrick.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 58)

Humble Oil & Refg. Co.'s No. 8-B Deutrich .... Rig
Humble & Valley's No. 9-A Deutrich .... Derrick.
Humble & Valley's No. 10-B Deutrich .... Drlg. shale shell and lime 2,938 ft.
Humble & Valley's No. 11-B Deutrich .... Location.
Humble & Valley's No. 4 Woodley .... Derrick.
Humble & Valley's No. 5 Woodley .... Derrick.
Humble & Valley's No. 6 Woodley .... Derrick
Humble & Valley's No. 5-B Grawunder .... Derrick.
Humble & Valley's No. 6-B Grawunder .... Drlg. shale and hard sand 1,926 ft.
Humble & Valley's No. 7-B Grawunder .... Drlg. hard sand 1,580 ft.
Humble & Valley's No. 10-B Grawunder .... Derrick.
Humble & Valley's No. 4-C Grawunder .... Drlg. sticky shale 1,186 ft.

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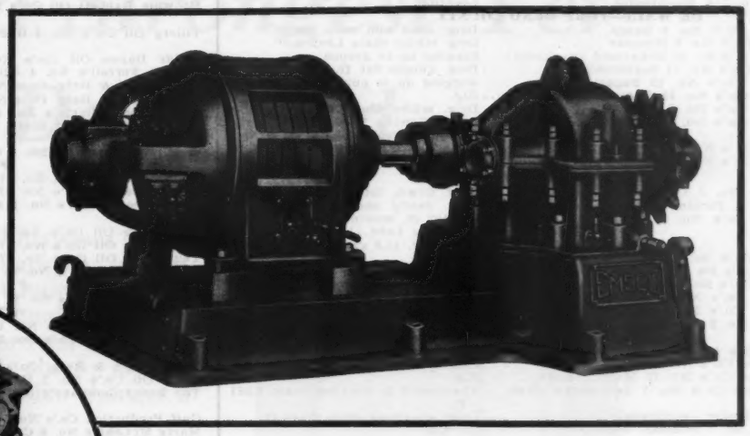

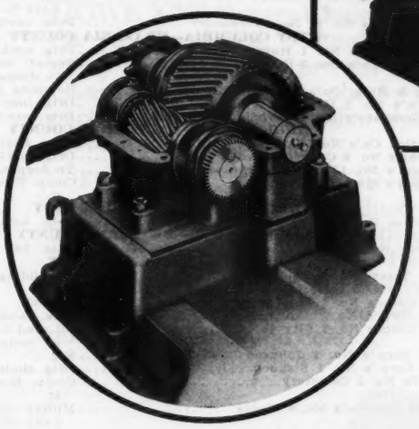

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Humble & Valley's No. 3 Helmuth ..... Derrick
Humble & Valley's No. 3 Jackson ..... Derrick
Humble & Valley's No. 6 Urban ..... Drlg. sticky shale 2,808 ft.
Humble & Valley's No. 7 Urban ..... Derrick.
Humble & Valley's No. 8 Urban ..... Location.
Humble & Valley's No. 5 Saunders ..... Derrick.
Humble & Valley's No. 6 Mueller ..... Drlg. sandy shale 3,030 ft.
Humble & Valley's No. 7 Mueller ..... Drlg. 1,196 ft.
Humble & Valley's No. 8 Mueller ..... Derrick
Humble & Valley's No. 4-A Bracey ..... Cemented casing to oil sand 3,250 ft.
Humble & Valley's No. 5-A Bracey ..... Drlg. sand and shale 2,425 ft.
Humble & Valley's No. 3 Ollie Wilson ..... Drlg. shale 2,613 ft.
Humble & Valley's No. 6-A Bracey ..... Location.
Humble & Valley's No. 5 Gotosky ..... Drlg. sand 3,318 ft.
Humble & Valley's No. 6 Gotosky ..... Derrick.
Humble & Valley's No. 3 Sherrill ..... Drlg. shale and lime 1,780 ft.
Humble & Valley's No. 1 Duncan, State land ..... Rig
Humble & Valley's No. 5 Thompson ..... Drlg. shale 2,227 ft.
Humble & Valley's No. 6 Thompson ..... Location.
Humble & Valley's No. 4 Payne ..... Rig
Humble & Valley's No. 5 Payne ..... Location.
Humble & Valley's No. 6 Payne ..... Derrick
Humble & Valley's No. 3-A Washington ..... Location.

DE WALT—FORT BEND COUNTY

Humble Oil & Refg. Co.'s No. 9 Camp ..... Drlg. sand and rock 893 ft.
Humble Oil & Refg. Co.'s No. 8 Hamner ..... Drlg. sticky shale 1,902 ft.
Humble Oil & Refg. Co.'s No. 10 Sugarland (workover)... Rigging up to deepen.
Humble Oil & Refg. Co.'s No. 11 Sugarland ..... Drlg. gumbo 966 ft.
Humble Oil & Refg. Co.'s No. 12 Sugarland ..... Rigging up to pump 3,785 ft.
Humble Oil & Refg. Co.'s No. 13 Sugarland ..... Rig.
Humble Oil & Refg. Co.'s No. 7 Nelson ..... Drlg. sticky shale 2,281 ft.
Humble Oil & Refg. Co.'s No. 1 Peterson ..... Comp. flowing 1,000 bbls. on three eighths-inch choke 3,787 ft.
Humble Oil & Refg. Co.'s No. 1-B Sugarland ..... Comp. flowing 400 bbls. 3,720 ft.
Humble Oil & Refg. Co.'s No. 1-C Bankers Mortgage..... Drlg. sticky shale 3,580 ft.

HUMBLE—HARRIS COUNTY

Continental Oil Co.'s No. 1 Cezeaux, south side ..... Shut down, total depth 4,520 ft.
Gardner Oil Co.'s No. 1 Perkins ..... Drlg. sandy shale 2,019 ft.
Humble Oil & Ref. Co.'s No. 5 Williams ..... Set 402 ft. screen 5,580 ft; comp. flowing 1,000 bbls. fluid, 50 per cent oil, 41.9 gravity.
Humble Oil & Refg. Co.'s No. 6 Williams ..... Rig.
Humble Oil & Refg. Co.'s No. 7 Williams (south) ..... Drlg. shale and lime 4,636 ft.
Humble Oil & Refg. Co.'s No. 1 Glass, south ..... Drlg. hard shale 6,814 ft.
Humble Oil & Refg. Co.'s No. 1 Oates ..... Drlg. shale 5,040 ft.
Humble Oil & Refg. Co.'s No. 1 Trahon ..... Drlg. sticky shale 4,765 ft.
Harvey Smith et al's No. 2 Ward ..... Drlg. sand and shale showing oil 4,294 ft.
Morris Investment Co.'s No. 1 fee ..... Drlg. shale 1,363 ft.
South Texas Petroleum Co.'s No. 12 Morris (south) ..... Drlg. sticky shale 4,336 ft.
South Texas Petroleum Co.'s No. 13 Morris (south)..... Rig.
South Texas Petroleum Co.'s No. 1 Lee, south flank .. Abandoned in heaving shale 4,687 ft.
Sun Oil Co.'s No. 3 Bender (northwest) ..... Drlg. sand and shale 2,503 ft.
The Texas Company's No. 2 Dunman, south side ..... Derrick.
The Texas Company's No. 3 Dunman, south side ..... Derrick.
The Texas Company's No. 270 Landslide (south) ..... Comp. flowing 150 bbls. oil an hr. 5,140 ft.
The Texas Company's No. 41 Stevenson (south) ..... Cemented 9⅝-in. casing 4,418 ft.
The Texas Company's No. 23 House ..... Drlg. salt 5,072 ft.
West Production Co.'s No. 2 Foster ..... Rig.

BLUE RIDGE—FORT BEND COUNTY

Cunningham Prod. Co.'s No. 6 Blakely (workover) .... Drlg. 2,437 ft.
Sinclair Oil & Gas Co.'s No. 5 Davidson (workover)..... Drlg. 4,246 ft.
So. Texas Petroleum Co.'s No. 5 Blakely ..... Reaming to set casing to test sandy shale showing oil 3,399 ft.

PIERCE JUNCTION—HARRIS COUNTY

Anderson & Plummer's No. 6 Whitehead (workover) .... Drlg. hard sand and shale 4,285 ft.
Gulf Production Co.'s No. 31 Taylor ..... Derrick.
Navarro Oil Co.-Texas Exploration Co.'s No. 17 Dooley... Cemented 6⅝-in. casing 4,472 ft. to test oil sand.
Navarro Oil Co.'s No. 2 A. Cain (workover) ..... Comp. flowing 600 bbls. fluid 50 per cent oil, 4,979 ft.
Navarro Oil Co.-Humble's No. 5 Dooley ..... Cemented 6⅝in. casing 4,485 ft.; bottom in sandy shale showing oil 4,553 ft.
Rio Bravo Oil Co.'s No. 11 B. Settegast ..... Bailed salt water and oil showing 4,625 ft.; to deepen.
Rio Bravo Oil Co.'s No. 16-A Settegast, west ..... Drlg. broken shale and lime 4,312 ft.
Rio Bravo Oil Co.'s No. 17-A Settegast, west ..... Drlg. gumbo and shale 2,592 ft.
Saxet Gas Co.'s No. 5 Herman (southwest) ..... Drlg. gumbo 2,640 ft.
Saxet Gas Co.'s No. 6 Herman, southwest ..... Rig.
Saxet Gas Co.'s No. 7 Herman, southwest ..... Derrick.
Superior Oil Co.'s No. 3 B. Whitehead (workover)..... Drlg. 4,469 ft.
Superior Oil Corp.'s No. 2 Herman, southwest ..... Location.
J. F. Barron's No. 3 Fitzsimmons ..... Derrick.
Shaw & Texas Exploration Co.'s No. 2-F Fitzsimmons .. Derrick.
Shaw et al's No. 4-E Fitzsimmons ..... Drlg. gumbo and lime 2,575 ft.
Smith & Plummer's No. 1 Settegast ..... Drlg. sandy shale 4,156 ft.

LIBERTY—LIBERTY COUNTY

Abercrombie & Harrison's No. 4 fee (workover) ..... Pulling screen 3,300 ft.
Empire Gas & Fuel Co.'s No. 5 Groggan ..... Comp. flowing 200 bbls. oil 3,568 ft.
Empire Gas & Fuel Co.'s No. 9 Groggan ..... Drlg. 521 ft.
Pierce & Rodgers' No. 1 Pickett ..... Aband. 404 ft.
Sun Oil Co.'s No. 52 Mitchell ..... Drlg. 2,399 ft.
Sun Oil Co.'s No. 53 Mitchell ..... Drlg. 2,868 ft.
The Texas Company's No. 5 Green (workover) ..... Drlg. hard sand showing oil 3,265 ft.
Yount Lee Oil Co.'s No. 19 Mitchell ..... Cemented casing to test oil sand 3,538 ft.

HULL—LIBERTY COUNTY

Empire Gas Fuel Co.'s No. 27 Barngrover (workover)... Comp. flowing 500 bbls. oil 3,659 ft.
Empire Gas & Fuel Co.'s No. 30 Barngrover ..... Spudded.
W. B. Flynn's No. 8 Harrison (workover) ..... Pulling liner.
Gulf Production Co.'s No. 50 Phoenix (workover) ..... Drlg. 3,731 ft.
Gulf Production Co.'s No. 76 Phoenix (workover) ..... To deepen.
Humble Oil & Refg. Co.'s No. 12 Hooks-Spell ..... Drlg. sand and shale 3,386 ft.
Ocean Springs Oil Co.'s No. 1-H Palmer ..... Drlg. 301 ft.
Republic Production Co.'s No. 76 Dolbear (workover) ... Set strainer to test oil sand 3,058 ft.
Republic Production Co.'s No. 128 Dolbear (workover).. Comp. flowing at rate of 3,000 bbls. daily 2,428 ft. stopped flowing.
Republic Production Co.'s No. 132 Dolbear (workover) ... Rig up; to deepen.
The Texas Company's No. 7 Hannah-Vacuum (workover). To deepen.
The Texas Company's No. 8 Hannah-Vacuum ..... Derrick.

BIG CREEK—FORT BEND COUNTY

Benedum & Trees' No. 1 J. F. Ahlers ..... Derrick.
Benedum & Trees' No. 1 Moore ..... Reaming 3,975 ft.; sand showing oil.
Gulf Production Co.'s No. 25 Davis (workover) ..... Swabbed salt water 3,038 ft.; to deepen.
Gulf Production Co.'s No. 57 Davis ..... Drlg. shale 3,103 ft.
The Texas Company's No. 3 fee (old well) ..... Tested salt water 4,213 ft.; pulling liner.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 1 Mayes ..... Swabbing 35 bbls. oil 2,688 ft.
Pure Oil Co.'s No. 4 Mayes ..... Core hard sand and shale showing oil 2,823 ft.
Pure Oil Co.'s No. 5 Mayes ..... Pulling screen to deepen 2,648 ft.
Pure Oil Co.'s No. 6-A Mayes ..... Rig
Pure Oil Co.'s No. 7 Mayes ..... Drlg. lime 2,577 ft.
Pure Oil Co.'s No. 8 Mayes ..... Drlg. gumbo 2,303 ft.
Pure Oil Co.'s No. 3 Lost Lake ..... Sand showing oil 4,013 ft.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 26 Wisdom ..... Set 6⅝-in. casing to test hard sand and shale showing oil 5,328 ft.

BATSON—HARDIN COUNTY

Ada Belle Oil Co.'s No. 129 Carlton ..... Comp. pumping 15 bbls. fluid, 5 bbls. oil 939 ft.
Ada Belle Oil Co.'s No. 130 Carlton ..... Rig.
East Batson Oil Co.'s No. 9 B.B.B.&C. ..... Bailed dry 871 ft.; shut down.
B. O. Poole's No. 2 Paraffin ..... Shut down 917 ft.
Paraffine Oil Co.'s No. 80 Paraffine ..... Bailing 469 ft.

SOUR LAKE—HARDIN COUNTY

Austin et al's No. 1 Watson ..... Rig.
Lake View Oil Co.'s No. 7 Minor ..... Comp. pumping 75 bbls oil 2,189 ft.
Lake View Oil Co.'s No. 8 Minor ..... Rig.
Gilbert Oil Co.'s No. 107 Gilbert..... Rigging up.
M. E. Peveto Oil Co.'s No. 1 Cannon ..... Bailing 1,311 ft.
The Texas Company's No. 305 fee ..... Location.

SARATOGA—HARDIN COUNTY

Paggi et al's No. 5 Queen City ..... Drlg. 1,123 ft.
Rio Bravo Oil Co.'s No. 78 Cotton ..... Drlg. shale 240 ft.

ORANGE—ORANGE COUNTY

Brownie Babbett Oil Co.'s No. 8 McLean (workover) .... Bailed salt water 3,558 ft.; shut down.
Tillery Oil Co.'s No. 3-B State (workover)..... Drlg. 3,471 ft.

GOOSE CREEK—HARRIS COUNTY

Cedar Bayou Oil Co.'s No. 11 Busch ..... Shut down 2,300 ft.
Russell Ferrell's No. 4 Gillette (workover) ..... Pulling screen to deepen.
Humble Oil & Refg. Co.'s No. 19 Ashbell-Smith ..... Drlg. 2,443 ft.
Humble Oil & Refg. Co.'s No. 76 Simms-Smith ..... Drlg. shale 4,439 ft.
Lake Shore Oil Co.'s No. 4 Duke ..... Shut down 2,594 ft.
Lee & Scott's No. 3 Scott ..... Rigging up to pump 1,227 ft.; total depth 2,610 ft.
J. M. West, trustee, No. 2 Scorrega ..... Drlg. 2,912 ft.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 28 McFaddin (workover) ..... Drlg. shale 4,912 ft.
Yount Lee Oil Co.'s No. 97 McFaddin (workover) ..... Drlg. shale and lime 4,647 ft.
Yount Lee Oil Co.'s No. 118 McFaddin ..... Cemented casing to test oil sand 4,729 ft.
Yount Lee Oil Co.'s No. 119 McFaddin ..... Drlg. sand 3,981 ft.
Yount Lee Oil Co.'s No. 57 Gladys City (workover) .... Drlg. shale and lime 3,200 ft.
Yount Lee Oil Co.'s No. 97 Gladys City ..... Drlg. sand and shale 4,886 ft.
Yount Lee Oil Co.'s No. 98 Gladys City ..... Drlg. sandy shale showing oil 3,122 ft.
Yount Lee Oil Co.'s No. 11 fee (workover) ..... Drlg. sand and lime 4,396 ft.

WEST COLUMBIA—BRAZORIA COUNTY

Continental Oil Co.'s No. 1 Hogg ..... Drlg. rock 5,807 ft.
Gulf Production Co.'s No. 3-B Hogg ..... Tested salt water 3,454-75 ft.; to deepen.
Humble Oil & Refg. Co.'s No. 3 Smith ..... Reaming 5,073 ft.
Saxet Oil Co.'s No. 2 Hogg ..... Drlg. lime 2,425 ft.
The Texas Company's No. 25 Arnold ..... Drlg. sand and boulders 2,025 ft.

HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 5-A Smith ..... Drlg. 3,352 ft.
Marrs McLean's No. 6 Cade (old well) ..... Drlg. 3,661 ft.
Marrs McLean's No. 12 Cade (workover) ..... To deepen.
Marrs McLean's No. 16 Cade ..... Comp. flowing 1,550 bbls. oil 3,693 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 19 Moore ..... Drlg. heaving shale 6,743 ft.

DAMON MOUND—BRAZORIA COUNTY

H. R. Cullen's No. 2 Smith ..... Drlg. 232 ft.

REFUGIO—REFUGIO COUNTY

Benedum & Trees' No. 3 Rooke ..... Rebuilding derrick to deepen 3,865 ft.
Morgan Oil Corp.'s No. 1 Fox, Block 72..... Derrick.
Morgan Oil Corp.'s No. 2 Fox heirs ..... Drlg. sand 620
Morgan Oil Corp.'s No. 3 City ..... Oil sand 3,690-98 ft.; cemented 6⅝ in. casing 3,690 ft.
Morgan Oil Corp.'s No. 1 Johnson ..... Rig
Morgan Oil Corp.'s No. 1 Strauch ..... Drlg. shale 3,283 ft.
Hewitt et al's No. 2 Cemetery ..... Comp. flowing 250 bbls. oil 3,679 ft.
Houston Gulf Gas Co.'s No. 6 Shelly ..... Milling 3,609 ft.; total depth 5,699 ft.
Houston Gulf Gas Co.'s No. 1 Lambert ..... Drlg. gumbo 2,674 ft.
Houston Gulf Gas Co.'s No. 8 Shelly ..... Comp. flowing 300 bbls. oil 3,668 ft.
Houston Gulf Gas Co.'s No. 4 Fannie Heard (workover) .. Testing sand showing oil 3,611 ft.
Houston Gulf Gas Co.'s No. 8 Fannie Heard ..... Comp. dry gas well 3,665-85 ft.
Houston Gulf Gas Co.'s No. 3 Tom Heard ..... Drlg. gumbo 1,803 ft.
Houston Gulf Gas Co.'s No. 2 Cummings ..... Drlg. sand 894 ft.
Houston Gulf Gas Co.'s No. 2 Morgan Shelly ..... Drlg. sticky shale 2,080 ft.
Mission Drlg. Co.'s No. 2 Fox (workover) ..... Reset screen 3,673 ft.; comp. dry gas well 50,000,000 ft.
Mission Drlg. Co.'s No. 1 Block 99 ..... Set 12½-in. casing 513 ft.
Mission Drlg. Co.'s No. 2 O'Brien ..... Drlg. 200 ft.
Mission Drlg. Co.'s No. 1 Eskridge-Heard ..... Oil sand 3,660-61 ft.; cem. 6⅝-in. casing.
Mission Drlg. Co.'s No. 2 Mitchell ..... Drlg. gumbo 4,613 ft.
Mission Drlg. Co.'s No. 2 Powers ..... Rig.
Olgufer Oil Co.'s No. 3 Ryalls ..... Rig.
Saxet Oil Co.'s No. 1 Serafine ..... Core sand 3,770-78 ft.
Saxet Oil Co.'s No. 1 Ryals ..... Drlg. sand 589 ft.
Saxet Oil Co.'s No. 3 Holmes Heard ..... Derrick.
Saxet Oil Co.'s No. 11 Clint Heard ..... Drlg. shale and lime 2,702 ft.
Houston Oil Co.'s No. 2-F Rooke ..... Cem. casing 3,682 ft.
Houston Oil Co.'s No. 9 Wilson Heard ..... Drlg. hard sand 1,720 ft.
Independent Oil & Gas Co.'s No. 1 O'Brien ..... Drlg. shale 5,818 ft.
Independent Oil & Gas Co.'s No. 1 Claude Heard ..... Drlg. hard sand 3,330 ft.
Independent Oil & Gas Co.'s No. 1 Anna Reilly ..... Testing oil sand 3,688-91 ft.
Independent Oil & Gas Co.'s No. 1-A J. F. B. Heard ..... Rig.
Independent Oil & Gas Co.'s No. 4 Reilly ..... Rig.
Independent Oil & Gas Co.'s No. 5 Reilly ..... Drlg. sand rock 1,026 ft.
W. L. Pearson, trustee, No. 2 Fox ..... Sand 3,682-88 ft.; cem. 6⅝-in. casing 3,682 ft.
Pearson Properties' No. 1 Bailey ..... Derrick.
Ed Price et al's No. 1 Mission River ..... Derrick.
Sun Oil Co.'s No. 2 Leisering ..... Completed.
The Texas Company's No. 1 Clint Heard ..... Running tubing; testing oil sand 3,664-72 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co. & Gulf Refining Co.'s No. 25 Miller ... Location.
Vacuum Oil Co. & Gulf Refining Co.'s No. 8 Bordages ... Location.
Vacuum & Gulf's No. 3 State ..... Drlg. shale 5,483 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 5 Lemke ..... Drlg. 1,200 ft.
Calcasieu Oil Co.'s No. 4 Caldwell ..... Drlg. shale 4,812 ft.
Calcasieu Oil Co.'s No. 8 Valery ..... Drlg. gumbo 3,102 ft.
Rycade Oil Corp.-Humble Oil & Refg. Co.'s No. 4 Gulf Land ..... Rigging.
Yount Lee Oil Co.'s No. 2-B Lacey, Old Hackberry..... Reaming 3,612 ft.
Yount Lee Oil Co.'s No. 2 Carter & Sweeney, Old Hackberry ..... Drlg. shale 3,902 ft.
J. F. Sutton' No. 1 Duhon (Old Hackberry) ..... No report.

JENNINGS—ACADIA PARISH

Jennings Petroleum Co.'s No. 3 Syndicate fee ..... Drlg. 1,631 ft.
Kathleen Oil Co.'s No. 1 Syndicate (workover) ..... Shut down 3,922 ft.
Ratcliff Oil Co.'s No. 7 Martin Producers (workover).... Comp. pumping 35 bbls. oil 1,814 ft.
The Texas Company's No. 5 Rayne heirs (King tract).... Drlg. 5,021 ft.
Yount Lee Oil Co.'s No. 5 Crowley, Sec. 48-9s-3w ..... Rig.
Yount Lee Oil Co.'s No. 7 Houssiere-Latrielle, Sec. 47-9s-2w ..... Drilled plug 7,100 ft.; set screen.
Yount Lee Oil Co.'s No. 1 E. F. Simms (northwest side).. Core sand 4,500 ft.

EDGERLY—CALCASIEU PARISH

Green Oil Co.'s No. 2 Moore (workover) ..... Shut down 2,844 ft.
Hercules Oil Co.'s No. 3 Paraffin (workover) ..... Drlg. 3,461 ft.

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The proper balance between design, material and workmanship makes HOWE XXS Rotary Chain the strongest yet developed. Actual use under many conditions has proven the Howe Chain able to stand the shocks and impacts resulting from sudden changes of speed and overloading.

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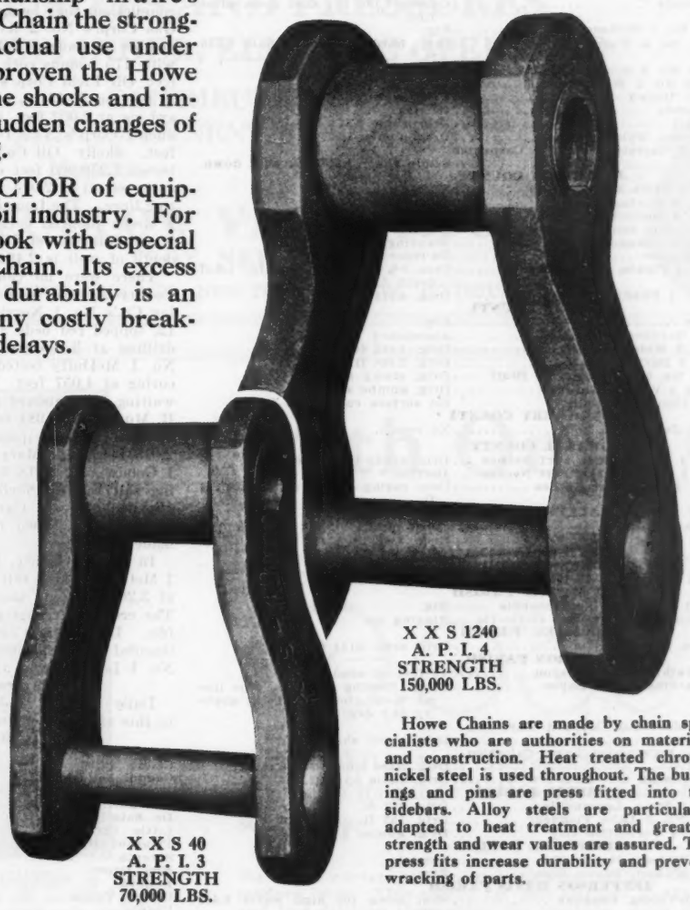

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OIL AND GAS WELL SUPPLIES

Cable and Rotary Tools

GENERAL OFFICES: HOUSTON, TEXAS

Rex Petroleum Co.'s No. 8 Hunter (workover) ..... Testing oil sand 3,738 ft.
Rex Petroleum Co.'s No. 1 Narroni (workover) ..... Drlg. 3,536 ft.

VINTON—CALCASIEU PARISH

Salt Dome Oil Co.'s No. 2 Shaw ..... Comp. pumping 8 bbls. oil 2,999 ft.
Marrs McLean's No. 4 Gray (workover) ..... Fishing 1,259 ft.
Vinton Petroleum Co.'s No. 1 Vincent (workover) ..... Drlg. 2,246 ft.
Vinton Petroleum Co.'s No. 7 Gray (workover) ..... Drlg. 2,261.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 7 Bouillion fee ..... Sidetracking 4,750 ft.; total depth 4,806 ft.
Rycade Oil Corp.'s No. 2 Atchafalaya fee (oil well) .... Rig up to deepen; present depth 3,045 ft.

STARKS—CALCASIEU PARISH

J. O. Davis' No. 1 Industrial ..... Location.
Gulf Production Co.'s No. 16 Lutcher-Moore ..... Drlg. 702 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 7 Yount Lee ..... Standing cem. 6,881 ft.
Pure Oil Co.'s No. 9 Yount Lee ..... Derrick.

SORRENTO—ASCENSION PARISH

Gulf Refining Co.'s No. 16 United Land Co. ..... Drlg. sand 3,126 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Empire Gas & Fuel Co.'s No. 1 Jackson, San Felipe..... Sand and shale showing oil 3,143 ft.; set screen.
Whittington et al's No. 1 Lass, 4 miles northwest of Bellville ..... Aband. 3,500 ft.

BRAZORIA COUNTY

Mills Bennett Production Co.'s No. 1 Allen, Allen Dome.. Drlg. sand rock 1,287 ft.
Faust et al's No. 5 Faust ..... Drlg. sand and lime 2,498 ft.
Shell Petroleum Corp.'s No. 1 Blakely-Winston, Danbury ..... Set screen to test oil sand 1,572-78 ft.
Steel & Strickland's No. 1 Lockridge ..... Rig.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Drlg. shale 2,912 ft.

FORT BEND COUNTY

Pure Oil Co.'s No. 1 Farris, Roberts Sur. ..... Location.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Cleaning hole to work over 4,055 ft.
Golf Crest Oil Co.'s No. 1 Gulf Crest ..... Standing 2,520 ft.
A. F. Belunek's No. 1 Thompson ..... Rig.
Hammond et al's No. 1 Brodt ..... Gumbo 1,190 ft.; shut down after fire.
Higgins Oil & Fuel Co.'s No. 1 Siadous, Mykawa ..... Rig.
Humble Oil & Refg. Co.'s No. 6 Warren Hockley..... Drlg. hard sand and shale 4,726 ft.
Humble Oil & Refg. Co.'s No. 2 Minnetex ..... Rig.
Humble Oil & Refg. Co.'s No. 2 Woodburn ..... Reaming 3,037 ft.
Cranfill & Reynolds' No. 1 Brown ..... Drlg. brown shale 2,807 ft.
Rich et al's No. 1 Highlands ..... Derrick.
Torsen et al's No. 1 Stewart ..... Drlg. shale 2,574 ft.
Watts Brothers' No. 1 Hubert, Mykawa ..... Drlg. gumbo 1,520 ft.
York & Robertson's No. 1 Garrett, Harris & Carpenter Sur. ..... Sandy shale 1,917 ft.; shut down.

JEFFERSON COUNTY

Deep Test Oil Corp.'s No. 1 Faith-McFadden ..... No report.
Gulf Production Co.'s No. 8 Bordages ..... Drlg. shale 2,456 ft.
Gulf Production Co.'s No. 4 Burrell ..... Drlg. gumbo 2,387 ft.
Gulf Production Co.'s No. 2 Guy Junker, Fannette ..... Derrick.
River Oil Corp.'s No. 1 Ship Channel, Brown Survey .... Standing.
Rosedale Oil Co.'s No. 1 Walker ..... No report.
The Texas Company's No. 2 Pipkin, Big Hill ..... Cem. 9⅝-in casing 4,992 ft.; total depth 5,606 ft.
The Texas Company's No. 1 Fitzhugh, Big Hill ..... Drlg. 4,875 ft.

LIBERTY COUNTY

Campbell et al's No. 1 fee ..... Rig.
Gray-Tex Oil Co.'s No. 1 Gardner ..... Abandoned 3,604 ft.
Gulf Production Co.'s No. 1 Weiser ..... Drlg. 4,482 ft.
Gulf Production Co.'s No. 3 Boyt, Hankamer ..... Drlg. 2,486 ft.
Humble Oil & Refg. Co.'s No. 6 Sterling, Moss Bluff .... Drlg. sticky shale 5,454 ft.
Cranfill Reynolds Co.'s No. 1 Vajdak, Sheeks ..... Drlg. gumbo 4,870 ft.
Cranfill Reynolds' No. 1 Thomas Davis ..... Set surface casing 955 ft.

MONTGOMERY COUNTY

Kelley-Baker et al's No. 1 Juergen ..... No report.

ORANGE COUNTY

Gulf Production Co.'s No. 1 J. H. Starks, Port Neches ... Drlg. sandy shale 4,498 ft.
Gulf Production Co.'s No. 1 M. H. Starks, Port Neches ... Derrick.
The Texas Company's No. 1 Polk, Port Neches ..... Cem. casing to test oil sand 3,146 ft.

WALLER COUNTY

Kirby Petroleum Co.'s No. 1 Rogers San Felipe ..... Cap rock 3,569-3,634 ft.; aband.
Talbert & Markle's No. 1 Young ..... Drlg. 3,600 ft.

SOUTH LOUISIANA

ASCENSION PARISH

Triumph Oil Corp.'s No. 2 Lacey, Sec. 20-10s-4e ..... Shut down 3,327 ft.

ASSUMPTION PARISH

Gulf Refining Co.'s No. 1 Armitese, Napoleonville ..... Rig.
Poor Boys Drilling Co.'s No. 1 LeBarre, Sec. 47-12s-13e .. Rigging up.

CALCASIEU PARISH

J. O. Davis' No. 1 Mimms, Sec. 20-9s-7w ..... Drlg. sand 6,181 ft.

CAMERON PARISH

Shell Pet. Corp.'s No. 6 Watkins, Black Bayou ..... To test oil sand 4,911 ft.
Shell Pet. Co.'s No. 12 Watkins, Black Bayou ..... Comp. flowing 921 bbls. pipe line oil ⅝-in. choke 5,221 ft.; gravity 24.9 deg.
Shell Pet. Corp.'s No. 1 Marceaux, Mallard Bay, Sec. 32-12s-3w ..... Drlg. sandy shale 4,813 ft.
The Texas Company's No. 4 Calcasieu Lake, Calcasieu Lake Dome ..... Drlg. hard lime rock 5,459 ft.
Yount Lee Oil Co.'s No. 1 Starks, Sec. 1-15s-15w ..... Drlg. shale 5,749 ft.

IBERIA PARISH

Gulf Refining Co.'s No. 11 State, Loreauville ..... Drlg. 351 ft.
Jefferson Lake Oil Co.'s No. 3 Lake Piegneur ..... Drlg. 733 ft.
The Texas Company's No. 4 Vermillion Bay ..... Drlg. gumbo 3,125 ft.

IBERVILLE PARISH

Standard Oil Co.'s No. 3 Wilbert, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 4 Wilbert, Bayou Blue ..... Rig.

JEFFERSON DAVIS PARISH

Vacuum Oil Co.'s No. 2 DeVilbiss, Roanoke ..... Shut down for high water 6,483 ft.
Yount Lee Oil Co.'s No. 1 Courtney, Welsh ..... Spudding.

LA FOURCHE PARISH

Gulf Refining Co.'s No. 25 Stark, Thibodaux ..... Rig.
Gulf Refg. Co.'s No. 1 City of New Orleans, Bay Champagne ..... Rig.

PLAQUEMINE PARISH

Humble Oil & Refg. Co.'s No. 1 Cockrell-Moran, Lake Grand Ecaille ..... Spudding.
Humble Oil & Refining Co.'s No. 1 Lake Washington, Lake Grand Ecaille ..... Drlg. 4,275 ft.
The Texas Company's No. 3 Garden Island Bay ..... Drlg. 776 ft.

ST. LANDRY PARISH

Gulf Refining Co.'s No. 2 Gaudet, Port Barre ..... Comp. flowing est. 2,000 bbls. oil ⅝-in. choke 3,412 ft.; shut in for storage.
Elbof Exploration Co.'s No. 1 Ledoux, Eunice..... Drlg. 1,602 ft.
Herbert-Baker Oil Co.'s No. 1 Fisher, Section 10-3S-4e... Drlg. 1,381 ft.

ST. MARY PARISH

Louisiana Land & Expl. Co.'s No. 1 Clark, Lot 15-16s-12e.. Rig.

ST. MARTIN PARISH

Bayou Teche Oil Co.'s No. 1 Fournet, Cypress Island..... Rig.
Ohio Oil Co.'s No. 4 Martin, Hager Dome ..... Aband. in salt 1,422 ft.
The Texas Company's No. 1 fee, Hager Dome ..... Drlg. 5,221 ft.
The Texas Company's No. 3 fee, Hager ..... Drlg. 4,043 ft.
The Texas Company's No. 2 St. Martin, Hager ..... Location.
The Texas Company's No. 4 fee, Hager ..... Location.
The Texas Company's No. 1 Iberville, Hager ..... Drlg. 1,462 ft.
The Texas Company's No. 2 Iberville, Hager ..... Location.
The Texas Company's No. 3 Iberville, Hager ..... Location.

TANGIPAHOA PARISH

Completion Oil Co.'s No. 1 Amos ..... No report.
Joan Development Co.'s No. 1 Hilton, Sec. 20-2s-9e ..... Cem. 6⅝-in. casing 3,000 ft.; standing.

TERREBONNE PARISH

The Texas Company's No. 3 State-Bay St. Elaine..... Drlg. rock 2,315 ft.
The Texas Company's No. 2 La. L. & E. Co., Dog Lake.. Rig.
The Texas Company's No. 2 La. L. & E. Co., Four Isle.. No report.
The Texas Company's No. 1 State—Bay Junop..... Fishing drill stem; total depth in shale 4,700 ft.
The Texas Company's No. 3 State—Lake Pelto..... Driving piling.
The Texas Company's No. 2 State—Caillou Island..... Rig.

LA.-ARK. FIELDS

(Continued from Page 60)

Petroleum Co.'s No. 1 McCook-Hibbler, though many eyes are now watching developments in this well. At 6,947 feet 5¾-inch casing was cemented and total depth is 6,965 feet steel line measure. J. W. Clark, trustee, completed No. 1 Wise in Section 30-23-9 as a 25-bbl. pumper at 2,754 feet. The Standard Oil Co. also completed No. 3-D Bodcaw at 4,700 feet with an estimated flow of 500,000 feet gas, November 11. Same company is making hole fast on No. 1 T. Crichton, Jr., and others, in Section 33-21-10, and is now drilling chalk and shale at 2,760 feet.

Quiet in Arkansas

In Arkansas, Ouachita County had one completion, that being Arkansas Natural Gas Corp.'s No. 2 Avera, which on November 8, gauged 3,275,000 feet of gas with 175 pounds rock pressure at 2,023 feet. Oil Field Corp.'s No. 10 McKenzie, in Section 36-15-16, is waiting for standard rig at 2,002 feet, as is Southern Producing Corp.'s No. 1-A Watts at 2,052 feet. Skelly Oil Co.'s No. 2 Langley tested 1,250,000 feet of gas with a light spray of oil at 2,014 feet and is now setting liner. The Louisiana Oil Corp.'s No. 1 Green plugged back to 2,300 feet and is arranging to set 8¼-inch casing. Total depth of well is 2,494 feet.

There were no completions in Union County for the week. Arkansas Drilling Co.'s No. 1 Norris in Section 17-18-12, topped red beds at 2,980 feet and is drilling at 3,105 feet. William Coats' No. 1 McDuffy tested salt water and is coring at 4,057 feet. E. M. Jones is waiting for standard rig in his No. 1 H. B. Murphy at 1,981 feet. Lion Oil Co.'s No. 1 James was pumping salt water at 2,018 feet. Joe Marr abandoned his No. 1 Goodwin at 2,418 feet after encountering salt water. Shell Petroleum Corp.'s abandoned No. 1 Carroll in black shale at 3,503 feet. Two new locations were made.

In Ashley County, J. G. Marcum's No. 1 McGarry tested salt water at 3,248 and at 3,267 feet and was dry at 3,281 feet. The crew is arranging to retest at 3,300 feet. In Prairie County, the Transcontinental Oil Co. cemented 8-inch casing in No. 1 Louis Novak at 2,060 feet.

Crude Production

Daily average production of the pools in this area for last week follows:

LOUISIANA

	Bbls.
Caddo, light	10,750
Caddo, heavy	3,095
Homer	3,690
Haynesville	4,395
De Soto-Red River	2,810
Little Creek	....
Pleasant Hill	1,300
Sarepta	190
Elm Grove	520
Bellevue	635
Cotton Valley	2,500
Urania	5,575
Total	36,560

ARKANSAS

El Dorado	3,485
Smackover, light	5,800
Smackover, heavy	45,345
Champagnolle	5,305
Stephens	1,000
Nevada County	1,950
Lisbon	1,155
Bradley	85
Total	63,225
Both States	99,785
Last week	99,857
Decrease	72

SOUTHWEST TEXAS

(Continued from Page 62)

150 feet to north line, 350 feet to east line; total depth 500 feet, drilling in shale. Humble and Luling's No. 7-A Johnson in the J. Hinds Survey, total depth 400 feet, drilling in shale.

Guadalupe County—Darst Creek

Gulf Production Co.'s No. 1 C. Anderson in the J. C. Darst Survey, 150 feet to south and east lines, location. No. 1 Tadlock in the Jacob C. Darst Survey, 150 feet northwest corner, location. O. W. Killam's No. 1 C. N. Adams in the Josias Randolph Survey, 150 feet to northwest and northeast lines of farm, total depth 475 feet, drilling.

Magnolia Petroleum Co.'s No. 1 L. V. Echols in the James Hodges Survey, 150 feet to northwest and southwest lines of farm, 3,650 feet to southwest and 3,220 feet to northwest of survey, location. No. 2 L. V. Echols in the James Hodges Survey, 150 feet to southwest and southeast lines of lease, derrick up. No. 1 Rand Miller in the Jerome B. Alexander Survey, 150 feet to northwest and southwest lines, total depth 2,210 feet; bailed dry to top of Austin, drilling deeper. No. 1 C. Zedler in the James Hodges Survey, 150 feet to northwest and northeast lines of 100-acre tract one-half mile south from Mag. No. 1 Appling, correction, derrick. Mundine Investment Co.'s No. 1 L. V. Echols in the James Hodges Survey, in 11-acre tract out of South Point of L. V. Echols tract, 150 feet to northwest and southwest lines of tract, 3,650 feet to southwest and 4,200 feet to northwest lines of survey; total depth 2,350 feet; topped chalk; will make drill stem test.

The Texas Company's No. 2 Dallas Wilson in the J. C. Darst Survey, 150 feet to south and west lines, derrick. No. 2 L. Anderson in the Jacob Darst Survey, 150 feet to north and east lines; total depth 685 feet, shut down. No. 3 L. Anderson in the Jacob Darst Survey, 150 feet to north and west lines, location corrected. No. 4 Lemmie Anderson in the J. C. Darst Survey, 150 feet to north and west lines of farm, derrick. Trinity Drillers-Clements' No. 1 Rand Miller in Jerome B. Alexander Survey, 150 feet to northwest and northeast lines of 25.5-acre tract, total depth 1,000 feet, drilling. United North & South Development Co.'s No. 1 Thomas Dix in the Joel R. Robinson Survey, 150 feet to southeast and southwest lines of lease, total depth 2,280 feet, drilling.

Kleberg County—Kingsville Pool

Humble Oil & Refining Co.'s No. 8 R. J. Kleberg in the Lot 7, Section 40, K.T.&I. Survey, 150 feet south and east of lot, location.

Live Oak County—Cartwright

Houston Oil Co.'s No. 2 J. B. Dunning in the M. B. Kilvin Survey, 1,445 feet north of No. 1; total depth 2,088 feet; in sand showing gas; set 8¼-inch casing at 2,081 feet; waiting on cement; sand at 1,546 feet, tested dry.

Nueces County—Agua Dulce

Agua Dulce Oil & Gas Co. and Houston Gulf Gas Co.'s No. 1 Ollie Purl, 450 feet from south and west lines of N half, Section 6, Ross Peters Subdivision, rigging up.

San Patricio—White Point

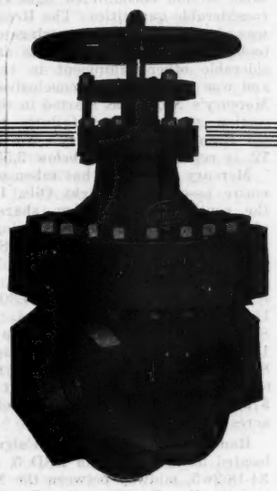
Spencer & Rhodes' No. 2 The Texas Company fee, in Lot 6, Roos Subdivision Survey, 150 feet to south and west lines of west 50 acres, derrick partly built, standing.

Victoria—Nursery

Humble Oil & Refining Co.'s No. 3-A Jay J. Welder, in the D.L.&C. Survey, 1,634 feet to southeast lines, 736 feet to southwest lines, 1½ miles northeast from Nursery, drilling in shale at 5,865 feet.

Duval County—Cole

Allied Gas Co.'s No. 1 Dinn, Survey 143, 660 feet south line, 660 feet east line, derrick. No. 2 Dinn, Survey 665,



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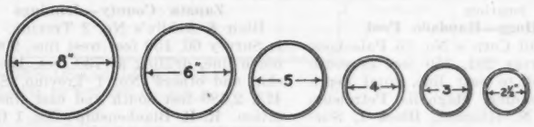

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PIPE, NIPPLE AND BOLT THREADING MACHINES

300 feet to north line, 300 feet to east line, location. J. G. Mackay's No. 2 Dinn, Block 1, Survey 454, 450 feet to north line, 160 feet to east line, total depth 40 feet, set 10-inch casing at 40 feet. Simms Oil Co.'s No. 5 Dinn, Survey 62, 1,320 feet to south line, 660 feet to east line, total depth 1,778 feet, set 6⅝-inch casing at 1,739 feet; sand at 1,748-78 feet; 35,000,000 feet of gas, 450 pounds rock pressure. No. 6 Dinn, total depth 1,779 feet, set 6⅝-inch casing at 1,741 feet; sand at 1,760-79 feet; 25,000,000 feet of gas, 450 pounds rock pressure. No. 7 Dinn, Survey 454, 660 feet to west line, 660 feet to north line, of the southwest quarter of the northwest quarter, derrick.

Duval County—Humble Pool

Humble Oil & Refining Co.'s No. 35 Kohler, Survey 165, 330 feet to south and east lines, total depth 1,799 feet; 25,000,000 feet of gas.

Duval County—Kohler Pool

Humble Oil & Refining Co.'s No. 37 Kohler, Survey 144, 330 feet to north line, 495 feet to east line, total depth 297 feet; set 10-inch casing. No. 1 Peters, Survey 398, 1,495 feet to north line, 1,495 feet to west line, rigging up. E. H. Buckner's No. 1 Peters, Survey 162, 495 feet to south line and west line, 1,795 feet deep, corrected; 25,000,000 feet of gas.

Duval—Schoolfield-O'Byrne Pool

Magnolia Petroleum Co.'s No. 10 Hahl, Block 25, Survey 250, 30 feet to east line, 150 feet to south line, drilling at 1,765 feet. Magnolia Petroleum Co.'s No. 2 Lundell, Survey 60, 150 feet to north and east lines, of southeast quarter of survey, drilling in sand at 2,301 feet. Onyx Petroleum Co.'s No. 5 Krauter, Block 20, Survey 250, 150 feet south and east lines of block, location. G. M. Partee's No. 6 Moody, Survey 60, 510 feet to north line, 150 feet to west line, total depth 2,357 feet, set 6⅝-inch casing at 2,347 feet, sand at 2,350-57 feet; estimated at 75 bbls. Simpson Fell Oil Co.'s No. 7 Moody, Survey 60, 2,148 feet to north line, 150 feet to west line, rigging up. Trapshooter Reilly's No. 2 Hahl, Block 27, Survey 250, 1,050 feet to east line, 150 feet to north line, total depth 2,330 feet; flowed and pumped 100 bbls. No. 3 Hahl, Block 26, Survey 250, 30 feet to east line, 150 feet to north line, rigging up. S. & O. Oil Co.'s No. 7 Hahl, Block 23, Survey 250, 450 feet to south line, 150 feet to west line, total depth 2,356 feet; set 6⅝-inch casing at 2,345 feet; sand at 2,347-56 feet; 25 bbls. No. 9 Hahl, Block 22, Survey 250, 450 feet to north line, 150 feet to west line, location.

Jim Hogg—Randado Pool

Randado Oil Corp.'s No. 35 Palacious, Block 2, Survey 291, 150 feet to south line, 450 feet to east line, total depth 100 feet, standing. Magnolia Petroleum Co.'s No. 1 N. Hinnant, Block 1, Survey 20, 600 feet to north and west lines; drilling at 2,585 feet. Magnolia Petroleum Co.'s No. 1 Weil, Block 2, Survey 5, 660 feet to north line, 349 feet to east line, location.

Jim Hogg—Henne, Winch-Fariss

George S. Marshall's No. 4 Holbien, Block 10, Survey 11, Share 3, 150 feet to south and west lines, derrick up. No. 5 Holbein, Block 10, Survey 15, Share 3, 150 feet to north and west lines, rigging up. W. R. Shankle's No. 3 Holbein, Block 22, Clarkson & Carscaden Subdivision, (Hogg Ridge), Share 3, Las Animas grant, 90 feet to north line, 150 feet to west line, supdded in.

Webb County—Schott Field

Livingston & Payne's No. 1 Guerra-Ochoa Survey 58, 1,371 feet east line, 470 feet south line, total depth 1,620 feet, testing.

Webb County—Alberta Pool

Rycade Oil Corp.'s No. 10 Yeager-Strohman, Share 5, Las Animas grant, 150 feet to south line, 200 feet to east line of Rycade's 631.8 acres, total depth 2,140 feet, 75 bbls.

Webb County—Magnolia-Cole

Cole Petroleum Co.'s No. 67 Benavides, Block 4, Survey 412, 313 feet east line, 160 feet north line, standing at 38 feet. Houston Oil Co.'s No. H-1 Benavides, Survey 701, B.S.&F., 546 feet from north line, 150 feet from west line, location; No. D-20 R. Benavides, Survey 754, 600 feet north of No. 19, total depth 2,351 feet, set 6⅝-inch casing at 2,345 feet, sand at 2,347-51 feet, 75 bbls. Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Block 15, Survey 754, derrick; No. 2 J. G. Valdez, Block 2, Survey 754, 330 feet to north line of Block 2, 660 feet to east line of Block 2, total depth 2,322 feet, 20,0000,000 feet gas, 550 pounds rock pressure, sand at 2,309-22 feet. Magnolia Petroleum Co.'s No. 1 D. Benavides, Block 14, Survey 694, 660 feet to east and south lines, derrick.

Webb County—Mid-Ojuelos Field

Crown Petroleum Co.'s No. 2 E. Garcia, Block 2, Survey 463, 1,300 feet east line, 3,350 feet south line, abandoned dry at 2,630 feet.

Webb County—Cole Gas Field

Magnolia Petroleum Co.'s No. 1 S. Perez, Survey 460, J. Poitevent, 1,980 feet north line, 660 feet west line, drilling at 2,392 feet. Magnolia Petroleum Co.'s No. 2 King-Harper, Block 2, Survey 323, 660 feet north and east lines, location. Houston Oil Co.'s No. H-1 R. Benavides, Survey 701, 666.2 feet south line, 666.3 feet east line, derrick. Number changes from G-2. No. D-20 Benavides, Block 5, Survey 753, 566 feet north line, 660 feet east line, total depth 2,351 feet, testing. Set 6⅝-inch casing at 2,346 feet, sand at 2,346-51 feet.

Webb County—Carolina-Texas

W. R. Shankle's No. 2 Webster, Survey 684, 1,170 feet west line, 150 feet south line, rigging up.

Webb County—Cole Gas Field

John J. O'Hern's No. 2 Valdez, Block 6, SW of NE of 754, 663 feet north line, 667 feet east line, total depth 2,324-2,351 feet, sand. Tested gas and oil through tester. Set 6⅝-inch casing at 2,330 feet. O. W. Killam's No. 13 Bruni, Survey 3, Adams Subdivision, Bruni lands, Mariano Arispe grant, 491 feet southwest line, 208 feet southeast line, Block 1, total depth 3,152 feet, depth corrected; sand at 2,367 feet tested salt water, show of gas, abandoned. No. 14 Bruni, Survey 5, Adams Subdivision, Bruni lands, Mariano Arispe grant, 150 feet northwest line, 150 feet southwest line, Block 11, total depth 700 feet, drilling.

Zapata County—Charco Redondo

Loyal Oil Co.'s No. 17 J. G. Martinez in the C. Redondo Survey, 600 feet northeast of No. 10, location; No. 18 J. G. Martinez in the C. Redondo Survey, 300 feet northwest of No. 17, location; No. 19 J. G. Martinez in the C. Redondo Survey, 300 feet north of No. 15, location.

Zapata County—Jennings

Blair & Acklin's No. 2 Trevino, Block 1, Survey 66, 150 feet west line, 200 feet north line, drilling at 730 feet. Blankenship and others' No. 1 Trevino, Survey 413, 2,480 feet south and east lines, location. R. R. Blankenship's No. 1 Garza, Block 13, Survey 413, 160 feet north and east lines, standing at 1,510 feet. O. W. Killam's No. 1 Flores, Survey 240, 850 feet southeast lines, 560 feet northeast lines, drilling at 1,260 feet; No. 2 Flores, Survey 250, and south of Survey 110, 1,565 feet east line, 150 feet north line, abandoned dry at 2,500 feet. Killam-Duggan's No. 9 Cuellar, Survey No. 277, 3,040 feet to east line, 310 feet to south line, total depth 1,591 feet, set 6⅝-inch casing 1,590 feet, sand at 1,590-91 feet, flowed 590 bbls., later increased to 960 bbls., now flowing 800 bbls.; No. 10 Cuellar, Survey 277, drilling at 800 feet; No. 11 Cuellar, 645 feet southwest line, 1,350 feet northwest line of 866-A tract, which is east half of 1,772-A Cuellar tract, Cerrito Blanco grant, location; No. 17 Cuellar, 600 feet north line, 940 feet east line, 160-A Cuellar tract out of 1,772-A, Cerrito Blanco grant, derrick. South Texas Production Co.'s No. 1 Roy Jennings in the Mira Flores grant, 18,055 feet southwest lines, 11,040 feet southeast lines, also 4,236 feet south, 63° west of No. 4, drilling at 3,280 feet; No. 2 Roy Jennings, Cerrito Blanco grant, 13,000 feet to northwest line, 9,800 feet to southwest line, drilling at 1,150 feet; No. 6 Joe Jennings, Cerrito Blanco grant, 2,640 feet to southeast line, 660 feet to northeast line, total depth 1,744-48 feet; sand, set 6⅝-inch casing at 1,743 feet; tested gas through tester.

CANADIAN FIELDS

(Continued from Page 64)

charge, Mayland's No. 1 was at a depth of 5,404 feet with a standard rig standing over the hole. As it was decided to complete No. 1 with a rotary rig, the standard rig had to be dismantled and removed, a new derrick erected and a new rotary rig brought forward from the factory. By mid August the rotary was working and progress made toward the lime. In September the lime was encountered at 5,443 feet and the 6-inch casing cemented.

"On October 6, at a depth in the lime of 244 feet, indications were encountered which led to bailing the well in hope that production had been secured, although geologic experience indicated it was somewhat early to look for production. The bailing test proved the latter hypothesis correct and the tools were run back to carry the hole to greater depth. After passing through a very hard stratum good progress was being made in softer formation when, with the well at a depth of 5,764 feet, the bit stuck and the drilling stem twisted off immediately below the turntable, leaving the entire drill stem in the hole. To meet this situation it became necessary to reverse the rotation of the stem standing in the hole and thereby back it off. This constitutes a tedious and highly technical performance, but satisfactory progress has been made and the drillers see nothing insuperable about removing the remainder when drilling will be resumed toward production."

Last summer Royalite Oil Co. secured a controlling stock interest in Mayland Oil Co. under an arrangement whereby the latter took over some Royalite acreage in the south end of the field.

Imperial Oil's Plans

Discussing plans of Imperial Oil, Ltd,. for further development, A. M. McQueen, vice president and production manager, states:

"All Imperial Oil drilling outfits will be kept in operation steadily. As soon as one outfit has completed its well it will start another. We have no definite announcement to make at the moment with regard to new Royalite or Dalhousie wells, other than the assurance that all our drilling crews will be maintained on further development work. We are now drilling in Turner Valley, Highwood and Waite Valley structures. No other structures are to be drilled on immediately." The company has 23 drilling outfits operating simultaneously, chiefly in the Turner Valley Field.

South Turner Valley

In the south Turner Valley area, Merland Oils' No. 1, Section 27-18-2w5, is at 4,420 feet and cementing 8-inch casing to shut off the crude oil encountered in the Dalhousie sands, preparatory to drilling to the lime. Derrick timbers have been ordered for Merland's No. 2 which has been spotted in the same section.

East Crest Oil Co.'s No. 2, LSD 4, Section 16-19-2w5, is drilling around 3,120 feet after mudding off a heavy gas flow encountered in the Dalhousie sands at 3,118 feet.

Calmont Oils' No. 2, LSD 11, Section 20-19-2w5, is at 4,066 feet and testing condition of hole with gyroscopic well surveying apparatus before running casing. Similar tests are being made at No. 4, down 3,840 feet, and No. 6 at 3,770 feet. Calmont's No. 8, same LSD, is rigging up with the outfit from No. 3 in the central field. Calmont's No. 10, same LSD, has cellar dug, and Calmont's No. 11 has been spotted in the same LSD. Cable tools will be used to 1,600 feet, drilling then continuing with rotary.

Mercury Oils' No. 1, LSD 13, Section 4-19-2w5, is reported drilling at 4,460 feet after encountering a show of light crude in the Home sand at around 4,250 feet. The show was small, bailing about 20 gallons per hour. At this depth the test was close to the 4,327-foot horizon at which the Record Oil Co.'s well in the same section encountered light crude in considerable quantities. The Record well was abandoned with two strings of cable tools, a string of fishing tools and considerable other equipment in the hole, and was not carried to conclusive depth. Mercury's No. 1 was started in the same section after repeated failures to clear the Record hole. Mercury's No. 2, LSD 12, is reported drilling below 3,553 feet.

Mercury Oils, Ltd., has taken over the entire assets of Sunlight Oils, Ltd., in the south Turner Valley, shareholders of the Sunlight company receiving share for share of Mercury stock. Sunlight Oils' No. 1, LSD 2, Section 4-19-2w5, will be completed as Mercury's No. 3; it is now drilling around 4,300 feet. Holdings of Sunlight Oils, Ltd., include 80 acres in Section 4-19-2w5, in LSD's 1 and 2, east of the Mercury holdings and 80 acres in the Jumping Pound district, together with other assets listed at around $75,000. Mercury Oils, Ltd., holds 260 acres in Section 4-19-2w5.

Rand Petroleum, Ltd., of Calgary has located its No. 1 test in LSD 5, Section 34-18-2w5, midway between the Merland and Sterling Pacific wells. Rand Petroleums holds 300 acres near the Merland well, in the extreme south of the field. Officers of the company are: President, W. D. Ransom; vice president, J. H. Forsey; secretary-treasurer, William Abel; directors, Rex Luchia, F. W. Adolph.

Central Turner Valley

In the central Turner Valley area, four tests are about to drill in the lime. Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is rigging up with the rotary outfit from Calmont's No. 9 to resume at 5,557 feet. A bradenhead, utilizing gas pressure between the 8¼-inch and 6¼-inch casing, has been installed to take care of the light crude production from the Dalhousie sands, estimated 25 bbls. a day.

Okalta Oils' No. 2, LSD 8, Section 1-20-3w5, is drilling at 3,705 feet after swabbing considerable light crude. Okalta's No. 3, LSD 9, is drilling below 2,812 feet with 1,000 feet of oil in the hole.

North Turner Valley

Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, is cleaning within 10 feet of bottom, after successfully sidetracking two strings of lost tools. The hole bottomed at 5,004 feet, where production was got in the deep lime some years ago. Model Oils' No. 1, LSD 8, Section 22-20-3w5,is drilling in the lower Fernies around 5,421 feet after passing through the Dalhousie sands without encountering oil or gas. This test got a strong show of light crude somewhat higher, thought to have come through a fault from the Dalhousie horizon.

United Oils' No. 5, LSD 2, Section 24-20-3w5, is reported working on derrick.

On the New Black Diamond structure, Outwest Petroleums' No. 1, LSD 5, Section 35-19-3w5, is reported discontinuing work and pulling casing. The test struck a fault plane some time ago, but drilling was continued to 3,700 feet, when it was decided to shut down. It is reported drilling may be resumed in the spring.

Jumping Pound Abandoned

On the Jumping Pound structure west of Calgary, Imperial Oil's No. 1 Bow River, LSD 11, Section 31-24-4w5, has been abandoned. The official statement says:

"No. 2 Bow River, which has been drilled to a depth of 3,530 feet, is being abandoned on account of encountering a thrust fault at 3,250 feet when the bit passed from the lower Fernie shales to the Belly River formation. Under such subsurface geological conditions, it makes it impossible to reach the lime. Showings of gas in the upper formations furnish domestic fuel to ranch houses in the vicinity of this well, and while the well will be abandoned it will be left in such condition that the gas may be utilized. The only oil showing in this well was very small and was found in the upper Dakotas at a depth of 730 feet." Imperial's No. 1 Bow River was abandoned last year when the log indicated geological condi-

tions that would make the lime practically unattainable.

On the Waite Valley structure, Richfield Petroleums' No. 1, Section 35-20-3w5, is drilling at 3,179 feet with additional gas showings. Harland Petroleums' No. 1 has let contract for derrick in LSD 14, Section 6-20-3w5. Officers of Harland Petroleums, Ltd., are: president, T. J. Noble, Calgary; first vice president, C. B. Shimp, Vulcan; second vice president, J. J. Rooney, Winnipeg; secretary-treasurer, A. P. Harland, Calgary; managing director, J. H. Pashak, Calgary; directors, Dr. R. C. Robinson and Dr. C. E. Coleman, Calgary; W. P. Graham, Winnipeg; R. C. Amey, London.

On the Highwood structure, Banner Oils' No. 1, LSD 6, Section 34-17-3w5, is drilling below 138 feet. The old Calgary-Alberta well drilled about 100 feet south in 1914 struck a strong show of shallow oil at 227 feet.

In the Morley Reserve area, Wabash Oils' No. 1 is drilling in the Devonian lime at 2,963 feet, with some additional gas showings.

In the Pincher Creek district, southern foothills, Weymarn Petroleums' No. 1, LSD 4, Section 7-61w5, is temporarily shutting down owing to a crooked hole. No. 2 test has been located at some distance from No. 1 and machinery and timbers are being hauled, the test to spud in early in December. No. 1 may be completed later.

In the Brazeau and Nordegg districts, northwest of Calgary, a geological party sent out earlier in the season by the Bearberry Oil & Refining Co. has completed its work, on the basis of which a test will likely be located in the spring.

In the High River district, Danish-Canadian Oils, Ltd., which has 480 acres under lease, is starting work on No. 1 test in LSD 4, Section 11-19-29w4. Chatham Oil Co. of Chatham, Ontario, has leased 4,000 acres on the same structure and will drill in NE Section 29-18-29w4, about a mile south of High River Oilfields' No. 1 test.

Reopening Old Field

Alberta's first oil field, opened in 1903, is to be given a test by a Calgary syndicate headed by A.P. Patrick. This field is in the Waterton Lake area and oil indications were first reported by Geologist Selwyn of the Geological Survey of Canada about 1891. Later, seepage oil was skimmed from the creeks and marketed by the late Bill Aldridge in the Cardston district, Aldridge refining the oil in small quantities in a primitive still and building up a considerable trade in kerosene. In 1903 a Calgary syndicate headed by John Lineham drilled the first commercial test on Cameron Brook, getting a flow of light crude at 1,080 feet depth, estimated at 20 bbls. a day. Drilling was continued to around 1,400 feet without improving the production, and ultimately fishing troubles led to abandonment. Lineham's discovery started a small sized boom, a number of companies were organized, and a townsite called Oil City was laid out. Several other tests were drilled, one well bailing 5 bbls. in six hours. This test was continued to 1,884 feet, and was abandoned about the year 1907. As late as 1921 the sites of the old drilling camps were still discernible, and oil was standing in the casing of some of the abandoned wells.

At the time of the Calgary boom the Original Discovery Oil Co. was organized and tried to bring the Lineham well back into production. They found the old casing plugged with pretty nearly everything from the old drilling rig that could be detached, so ultimately a new diamond drill test was started, which failed to develop production. The Patrick-Spence Syndicate holds acreage along Cameron Brook, where the Lineham and Original Discovery wells were drilled, and is preparing for a test to spud in next spring. The production in this area is similar to the light crudes secured in the upper horizons of the Turner Valley. The syndicate includes A. P. Patrick, D. W. Spence and L. Patrick of Calgary.

Monte Cristo Oils, Ltd., headed by A. Owen Jennings of Calgary, has secured 3,000 acres on various Alberta structures and is planning to drill its No. 1 test on the Watson structure in the Ghost River area, to spud in next spring.

Young Petroleum Co. of Calgary has been organized to drill near Caston. No. 1 test for oil has been located on a structure close to the town, but a second test may be drilled for gas. Officers are: president, Dr. W. R. Blow; vice president, D. J. Young; secretary-treasurer, D. M. Blow; managing director, Jackson Young; directors, Senator E. Michener, R. J. Hutchings, L. C. West.

Canadian Oil & Development Syndicate has secured considerable acreage in Alberta, which will be developed by a company to be organized. E. H. Cunningham Craig has made a geological inspection of the acreage and will select the drilling sites. Mr. Craig has left for England to report to the British backers of the syndicate, but will return to Canada in the spring to select drilling sites and look after the development.

Red Coulee Field

In the Border Fields, the Red Coulee Field west of Coutts continues to attract attention. Vanalta Oils' No. 1 producer, Section 4-1-16w4, is endeavoring to run a packer to separate the oil and gas sands and facilitate oil production. Both oil and gas are reported to be increasing, and recently the oil broke loose and sprayed the derrick. Vanalta's No. 2, same LSD, will be rigged up as soon as the tools from No. 1 are released. Hol-Gar Petroleum Co.'s No. 1, LSD 1, Section 11-1-17w4, is reported rigged up.

Southern Alberta Exploration Co. financed by Winnipeg and Lethbridge interests has located No. 1 well in LSD 8, Section 3-1-16w4, close to the border. The company is incorporated under Dominion charter with office at Lethbridge. Officers include: president, W. S. Newton, Winnipeg; vice president, P. H. Gayner, Lethbridge; secretary-treasurer, J. Vincent Nutter, Winnipeg; directors, G. J. Thacker, J. A. Machray, William Galvin, W. H. Johnston, A. J. Andrews, all of Winnipeg, and Dr. R. N. W. Shillington and S. J. Shepherd of Lethbridge. Drilling contract has been let to Elliott Drilling Co. of Montana for No. 1 well at a price around $35,000.

Mid-Continent Oil & Refining Co.'s No. 1 is reported spudding in on the Montana end of the Red Coulee structure, offsetting Vanalta's No. 1. The company was recently incorporated with office at Calgary. D. A. McDonald is managing director, and the company holds 197 acres on the Red Coulee structure. It is reported that Calmont Oils, Ltd. of Calgary will drill a test in Township 2-17w4. Large bonuses are reported being paid for Red Coulee acreage.

In the Milk River district, Bugle Oils' No. 1, LSD 12, Section 14-23-11w4, is moving in materials.

In the Skiff Field, Dauntless Oils' No. 1, LSD 9, Section 36-6-15w4, has cemented casing and is waiting for cement to harden before testing the 30-foot oil sand.

In the Oyen district, Fuego Oils' No. 2, Section 34-25-4w4, is digging cellar.

Wainwright Field

In the Wainwright Field, East Central Alberta, Admiral Oils' No. 1, LSD 16, Section 36-44-7w4, is rigged up with standard tools ready to start drilling into the lime at 2,695 feet. Baldwin Oil & Refining Co. is locating its No. 1 test near Birch Lake. Bethwain Oils' No. 2, N half Section 4-45-6w4, has rotary derrick and camp complete and is installing equipment. Lloyd's Petroleums' No. 1, LSD 12, Section 6-45-6w4, is rigging up rotary equipment. Senator Oil & Gas Development Co.'s No. 1, Section 23-44-6w4, has rotary derrick up.

In the Ribstone Field, Meridian Oils' No. 1, LSD 3, Section 16-45-1w4, has made more than 3,000 bbls. since it was brought into definite production about a month ago. Trouble with sanding has been overcome. Ribstone Oils' No. 2, LSD 5, Section 25-46-1w4, is reported to have encountered in the lime a strong flow of brine the chemical properties of which are being investigated.

Manitoba Prospects

In Manitoba, the Dauphin Oil Syndicate's No. 1 test near Dauphin, is reported down 845 feet and drilling with some shows of oil and gas in the Domolitic limestone.

In northern Manitoba interest is also being shown in the Benton area 60 miles south of The Pass, where prospecting for oil and gas indications is being carried on. Oil possibilities in the Pasquia Hills near the Saskatchewan boundary and the Carrot River Valley are being investigated. The district received some attention a number of years ago when a drilling outfit was taken in but the test was left unfinished. It is reported new interests are taking over the venture and getting the outfit in shape to resume.

Ontario Fields

In Ontario, Union Natural Gas Co.'s No. 43, in Euphemia Township, Lambton County, at the eastern end of the Dawn Field, has finished a dry hole at 1,860 feet. Union's No. 44, Euphemia Township, is drilling around 800 feet.

In Dover Township, Kent County, Ajax Oil & Gas Co.'s No. 6 is reported drilling around 2,000 feet. Olga Oil & Gas Co.'s No. 1 is at about the same depth and drilling. Olga's No. 3 on the Bradley farm is drilling around 1,800 feet. Acme Oil & Gas Co.'s No. 2 has started drilling.

Olga Oil & Gas Co.'s No. 2 deep test in the Bothwell Field, Kent County, is reported drilling around 1,000 feet.

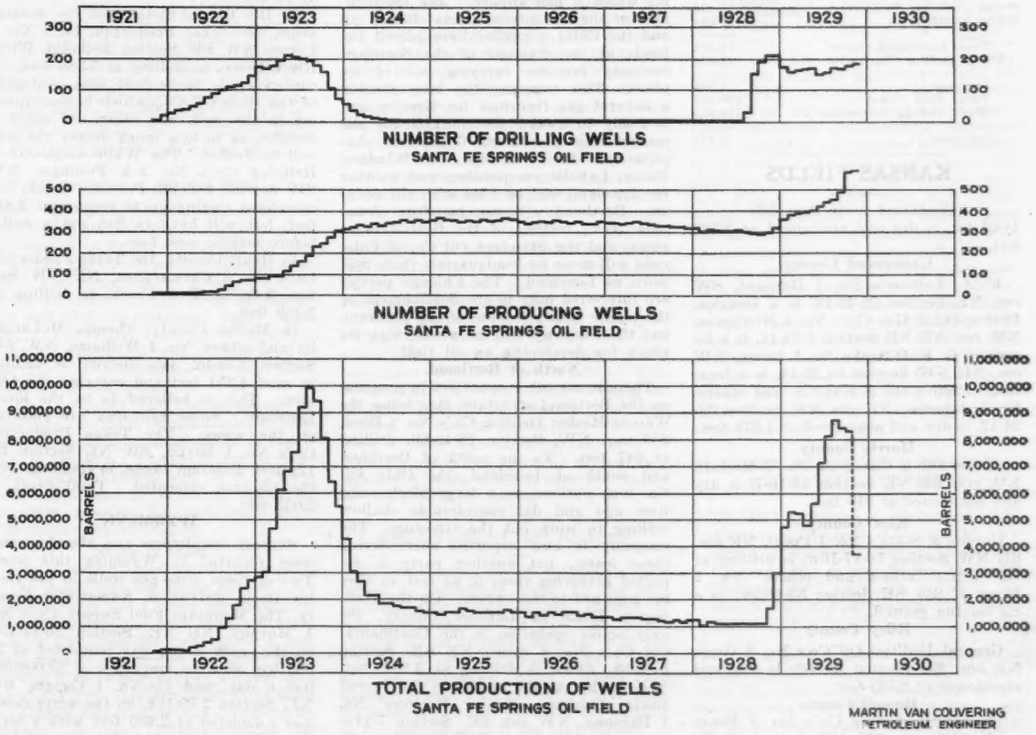
In Romney Township, Kent County, near Stevenson, the Smith Oil & Gas Co.'s test has been shot at the 1,300-foot level and is reported making around 275,000 feet per day of gas. It will be deepened and given a second shot.

CALIFORNIA FIELDS

(Continued from Page 68)

be made soon. This project is located on a portion of the Careaga lease. The Prairie Oil & Gas Co. has taken over the Shyvers lease north of Lompoc and plan to drill a deep test in the near future, notwithstanding the Standard encountered serpentine before quitclaiming the same property some time ago.

The Ohio Oil Co. has encountered oil and gas in a wildcat at Playa Del Rey in Los Angeles basin and pipe is being landed for a test at 6,199 feet. The showings logged are not expected to result in commercial production but another 100 feet of hole may change the outlook. The Continental Oil Co. is making good footage in a wildcat being drilled in an area located between the Seal Beach and Long Beach Fields but it will be another month or two before it is deep enough to pick up the anticipated pay. The Shell Oil Co. has swung south of Seal Beach and will attempt to develop production between this field and Huntington Beach. The Newhall district of Los Angeles County has come in for a lot of prospecting work during the past month or two and a number of other holes will be drilled in the next 90 days. This drilling is not expected to become an important factor, as any production secured will be relatively small. This is one of the first districts prospected by California pioneers and should yield a number of small shallow pumpers.



GULF COAST FIELDS

(Continued from Page 58)

Fuel Co.'s No. 1 Jackson, another test at Brookshire, has picked up 14 feet of sand and shale at a total depth of 3,143 feet and Saturday had set screen to test. Kirby Petroleum Co. and the Empire Gas & Fuel Co. are developing the holdings of the dome under an arrangement with the Gulf Production Co., the original owner, which farmed out the acreage granting the west half to the Empire and the east half to Kirby.

Daily Average Production

Daily average production of Coastal fields for the past week was:

TEXAS

Allen	10
Barbers Hill	21,798
Batson	1,329
Big Creek	5,230
Blue Ridge	2,402
Brenham	160
Boling	1,379
Clay Creek	1,950
Damon Mound	502
DeWalt	12,650
Fannette	2,926
Goose Creek	5,498
Hankamer	600
High Island	1,503
Hull	10,386
Humble	19,868
Jasper County	35
Lost Lake	402
Markham	355
Nash	310
North Dayton	470
Orange	2,549
Orchard	105
Pierce Junction	11,853
Port Neches	1,202
Refugio	14,232
Raccoon Bend	8,753
Sheeks	327
Saratoga	962
Sour Lake	2,104
So. Liberty-So. Day on	5,605
Spindletop	21,775
West Columbia	6,548
Total Texas Coast	165,978
Week ending November 9	163,945
Increase	2,033

SOUTH LOUISIANA

Anse La Butte	45
Bayou Blue	360
Bayou Boullion	140
Black Bayou	709
Dog Lake	15
Edgerly	584
Jennings	1,555
Hackberry	5,312
Lake Barre	443
Lake Pelto	162
Lockport	3,587
New Iberia	20
Port Barre	40
Sorrento	27
Starks	378
Sulphur	6,200
Sweet Lake	17
Vinton	4,529
Welsh	225
White Castle	130
Total Louisiana Coast	24,478
Week ending November 9	23,030
Increase	1,448
Total Gulf Coast	190,456
Week ending November 9	186,975
Increase	3,481

KANSAS FIELDS

(Continued from Page 56)

14-21-1w, is dry and abandoned at 3,562 feet.

Greenwood County

F. A. Valliere's No. 1 Barnard, SW cor. NE Section 32-22-10, is a location. Prairie Oil & Gas Co.'s No. 1 Newhouse, NW cor. NE NE Section 1-24-11, is a location. G. F. O'Neal's No. 1 Brinn, NW cor. NE NW Section 34-22-11, is a location. Prairie Oil & Gas Co. and others' No. 1 Johnson, NE cor. SW Section 22-24-12, is dry and abandoned at 1,675 feet.

Morris County

Arrow Oil & Gas Co.'s No. 7 Metcalf, NW cor. SE NE Section 15-16-7, is dry and abandoned at 510 feet.

Rice County

Gordon & Statz's No. 1 Pochl, NE cor. SE NW Section 16-17-10w, is drilling at 150 feet. Tatlock and others' No. 1 Ploog, C SW SE Section 33-18-9w, is a rig on the ground.

Riley County

General Utilities Oil Co.s No. 1 Gray, NE cor. SE Section 30-6-6, is dry and abandoned at 2,535 feet.

Russell County

Prairie Oil & Gas Co.'s No. 1 Brungardt, NW cor. SW NW Section 31-12-15w, swabbed 180 bbls. in sand at 3,044-80 feet. Same company's No. 1 Sellans, NE cor. SW Section 36-15-13w, swabbed 75 bbls. in sand at 3 352-54 feet.

Reno County

Milmac Oil Co. and others' No. 1 Stucky, SW cor. NW Section 17-26-5w, is dry and abandoned at 4,018 feet.

Sedgwick County

Wentz Oil Corp.'s No. 6 Bright, NE cor. NW Section 1-26-1w, is spudding. Bu-Vi-Bar Petroleum Corp. and others' No. 4 Lyons, NE cor. NW SW Section 7-26-1, is a rig. Dixie Oil Co. and Amerada Petroleum Corp.'s No. 1 Foulston, SW cor, NW Section 11-26-2, is a rig. Shell Petroleum Corp.'s No. 4 Fisher, SW cor. SW NW SE Section 15-26-2, swabbed 125 bbls. in sand at 2,897-2,926 feet. Bu-Vi-Bar Petroleum Corp. and others' No. 6 Reed, NW NW SE SE Section 1-26-1w, made 1,594 bbls. at 3,355-59 feet.

Sumner County

Bu-Vi-Bar Petroleum Corp. and others' No. 1 Wilson, NE cor. NW Section 27-34-2w, is dry and abandoned at 4,564 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 64)

of No. 1-A State, is now drilling at 1,510 feet in shale. At 955-65 feet it had a show for 5 bbls. a day, and this showing continues at present depth. The formation is much softer than in the well to the north and the showing is the first found at that depth in any of the wells. The theory of the company's geologist is that a hidden fault lies between the two wells and that the southern end of the structure is the most promising. In the meantime, the Berthoud Service Co. was organized by affiliated interests and piped natural gas to a local industry in that area and applied to Berthoud for a franchise to serve natural gas to the town of Berthoud. Before this franchise was granted the Colorado-Wyoming Gas Co. (Cities Service Co.) applied for a franchise and before final action was taken by the city council, it commenced laying pipe in the city in connection with its extension being built from Denver to Fort Collins. Injunction suit followed, and also some litigation involving the gas well. It is now stated that these matters have been adjusted. The Standard Oil Co. of Colorado withdrew its application for a franchise, and the Cities Service subsidiary was granted the one for which it had applied. The indebtedness of the old interests was cleaned up and the Chicago parties have placed the funds at the disposal of the Standard company for the carrying out of its plans. This company has been granted a natural gas franchise for Greeley and is ready to award the contract for the construction of a 32-mile 6-inch line. Applications for franchise in Windsor, Eaton, LaSalle are pending, and another for Loveland will be filed with the council. Berthoud will use gas from Amarillo, Tex., instead of the field 3 miles away, and the Standard Oil Co. of Colorado will move its headquarters from that town to Loveland. The Chicago parties are interested only in the development of the public utility feature of the program, but the company will go ahead with its plans for developing an oil field.

North of Berthoud

There is one other operation in progress on the Berthoud structure, this being the Warner-Mosher Drilling Co.'s No. 1 Reed, SW cor. NW, Section 28-4n-69, drilling at 647 feet. To the north of Berthoud and south of Loveland, the Ohio Oil Co. took options on a large block some time ago and did considerable shallow drilling to work out the structure. The company is now reported surrendering these leases, but another party is reported gathering them in as fast as they are returned to the owners. On the Wellington Dome in Larimer County, the only active operation is the Continental Oil Co.'s No. 4 Scott, NE SE, Section 6-9n-68, which is drilling at 4,287 feet. Still farther to the north, on the Round Butte structure, Stanley Barrows' No. 1 Barrows, NW cor. SE, Section 7-11n-68, is bottomed at 2,170 feet in the marine beds above the Sundance and is underreaming the 5⅞-inch.

In Jackson County, the Midwest Refining Co.'s No. 21-X Rich, SW NW, Section 9-6n-80, Buffalo Creek, is standing with the 10-inch cemented at 3,200 feet and the Producers & Refiners Corp.'s No. 1 Hendershot, SE NE, Section 2-6n-81, Pole Mountain, is drilling at 3,120 feet.

In Washington County M. T. Smith & Sons' No. 1 Middlemist, SW SE Section 14-4s-56, set the 15½-inch casing at 1,005 feet and is waiting for the cement to harden.

In Bent County, the Continental Oil Co.'s No. 1 Pipe Springs, NE SE Section 27-27-49, is drilling at 5,175 feet. The Bent County Oil & Gas Co.'s No. 1 State, Section 16-23-52, which has been idle for several years, is being abandoned at a total depth of 4,010 feet. This was not located on a structure, according to several geologists, but the well yielded some valuable geological information. It topped the redbeds at 580 feet and entered the Pennsylvanian at 3,010 feet. There was an 80-foot water sand at 2,040 feet and a show of oil at 3,600 feet. A bed of asphalt was encountered at 3,900 feet. A similar showing of asphalt was reported recently in the Continental's test at Pipe Springs at a little below 5,067 feet.

Prowers County

The Midwest Refining Co., through a subsidiary, has filed for record a number of commercial leases north of Holly in eastern Prowers County near the Kansas line.

In Jefferson County, near Denver, the Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor. Section 24-4s-69, is drilling below 3,568 feet and carrying the 6¼-inch.

In Las Animas County, the Trinidad Development Co.'s No. 1 Flonz, NE SW Section 23-32-63, is drilling at 2,410 feet. The Helium Co.'s No. 1 Keith, NW cor. Section 4-29-60, Thatcher Dome, is coring in sand at 950 feet.

In Huerfano County, the Parker Club, Inc., No. 1 Fee, Section 4-28-68, Badito-Alamo Dome, joint with the Kinney-Coastal Oil Co., is drilling at 3,782 feet and will run and cement the 5⅞-inch as soon as a good seat is found. The hole is making around 1,000,000 feet of gas through water.

In Fremont County, the Continental Oil Co.'s No. 1 Giovanni, SW NW Section 1-19-70, Canon City district, is spudding at 10 feet.

In Rio Blanco County, on the western slope, the Texas Production Co.'s No. 1 Potter, NW SW Section 30-2n-96, White River Dome, is drilling at 5,389 feet. A conference is to be held with geologists of the Ohio Oil Co., which has an interest in the well, and others, to reach a decision as to how much deeper the hole will be drilled. The White Eagle Oil & Refining Co.'s No. 1-A Fordham, NW SW Section 9-2s-96, Piceance Creek, has completed rigging up to resume at 2,815 feet, but will have to fish out a bailer before making new hole.

In Routt County, the Texas Production Co.'s No. 3 Carstarphen, NE NW Section 5-6n-86, Tow Creek, is drilling at 2,480 feet.

In Moffat County, Thomas McLaughlin and others' No. 1 Williams, NW SW Section 2-3n-92, Iles district, is drilling in sand 4,251 feet and carrying the 4¾-inch. This is believed to be the lower Morrison. Some rainbows are showing on the water. The Texas Production Co.'s No. 1 Berlin, SW NE Section 19-12n-100, Bartram Dome, is standing with the 8⅝-inch cemented. Total depth is 2,055 feet.

WYOMING

Several completions and abandonments were reported in Wyoming this week. Two of these were gas wells in the Baxter Basin district in Sweetwater County. The Mountain Fuel Supply Co.'s No. 1 Murphy, NE NE, Section 26-17-104, on the south dome, was completed at 2,500 feet with an open flow of 33,000,000 feet a day, and its No. 1 Capers, SW NE, Section 2-19-104, on the north dome, was completed at 2,495 feet with a large flow of gas, but which has not yet been tested. The Osage Oil Trust Co. completed a well on Section 13-46-63, in the Osage Field in Weston County at 1,550 feet with an initial production of 100 bbls., estimated, and the Wyalta Oil Co.'s No. 1 Smith, SE cor. NE, Section 11-38-78, Natrona County, east of Teapot, is estimated good for 25 bbls. from the Shannon sand at 1,067-1,106 feet after plugging back. The Fargo-Western Oil Co.'s No. 1-A, SW NW, Section 2-33-83, Natrona County, between Poison Spider and South Casper Creek, was completed in the Tensleep at 2,482-2,542 feet and is estimated at 200 bbls. a day. This proves up considerable new territory between the two structures. The Wyoming Drilling Syndicate's No. 1, NE cor., Section 15-44-64, Howard Dome, Weston County, was abandoned at a total depth of 4,982 feet. The Wall Creek sands were cut at 3,920-4,080 feet. A showing in this horizon was shot and it produced a small quantity of high grade oil, but not in commercial quantities. Sackrider & Kuhlman's No. 1, Lot 11, Section 3-26-113, La Barge Field, Sublet County, was completed at 965 feet and averaged 180 bbls. a day the first few days. This operation formerly was known as the Claremont Oil Co.

Frannie Dome

The Midwest Refining Co.'s No. 1 Rosenberg, NE cor., Section 26-58-98, on the Frannie Dome in Park County, which was reported a completion last week at 2,809 feet with an initial production of 95 bbls., was deepened to 2,825 feet and production was increased to 263 bbls. naturally per day. The oil is coming from the Tensleep. The Ohio Oil Co.'s No. 1 Burlington, Section 21-53-101, Shoshone Dome, is drilling at 3,144 feet, and the California Exploration Co.'s No. 2 Pitchfork, NW NE, Section 14-48-102, is shut down at 2,074 feet waiting for equipment. In the Oregon Basin Field, the Texas Production Co.'s No. 1 Sonners, NW cor., Section 29-51-100, is drilling at 2,250 feet, and the Lenco Petroleum Co.'s No. 1 Morris, C SW SE, Section 20-51-100 (cor.) cemented the 6⅝-inch at 3,681 feet on top of the Embar. The Orchard Oil Co.'s No. 1 Owens, SE cor., Section 29-52-100, is drilling at 2,258 feet, and its No. 1 Atherly, SW cor., Section 33-52-100, is drilling at 2,093 feet. Same company's No. 7 Rue, SW cor. NW, Section 28-51-100, is rigged with standard tools and ready to begin drilling into the Embar at 3,570 feet.

In Hot Springs County, the Midwest Refining Co.'s No. 8 Wagonhound, NW SE, Section 6-44-98, is bottomed at 1,540 feet and running the 12½-inch at 1,286 feet. The Ohio Oil Co.'s No. 1 Smith, Section 9-46-99, is drilling at 1,600 feet.

In Big Horn County, the Producers & Refiners Corp.'s No. 3, NW NW, Section 24-56-98, Garland Dome, joint with the Kinney-Coastal Oil Co., is fishing for tools at 4,225 feet. This hole is making considerable gas. The 4¾-inch casing was cemented at 4,183 feet and the gas mudded off, but the tools would not work through the heavy mud, and the mud was bailed out. The Ohio Oil Co.'s No. 1 Union Gas, NE cor., Section 22-56-97, Byron Dome, is bottomed at 4,490 feet and fishing for bit.

The Midwest Refining Co.'s No. 29-DT, NW, Section 35-40-79, Salt Creek, a test to the granite, is drilling at 2,760 feet in shale and sandy shell.

Pilot Butte Dome

The Kinney-Coastal Oil Co. has decided to mud off the gas in its No. 1 Dykeman, SE SW, Section 22-3n-1w, on the Pilot Butte Dome, and drill deeper. This well, which opens a new field, is bottomed at 3,367 feet in the top of what is believed to be the Muddy sand and gauged 63,348,000 feet of gas. After shutting it in as a gasser, it was decided that the conditions were favorable for continuing the hole as a test through the Dakota, and Morrison series on to the Sundance, the original objective. A combination rotary rig is being erected. The plans are to drill through the sand and then set the 8¼-inch. The Texas

(Continued on Page 153)

Practical Suggestions in Refining

By W. T. Ziegenhain

OPERATING DATA AID IN CHOOSING BEST TYPE OF CENTRIFUGAL PUMPS

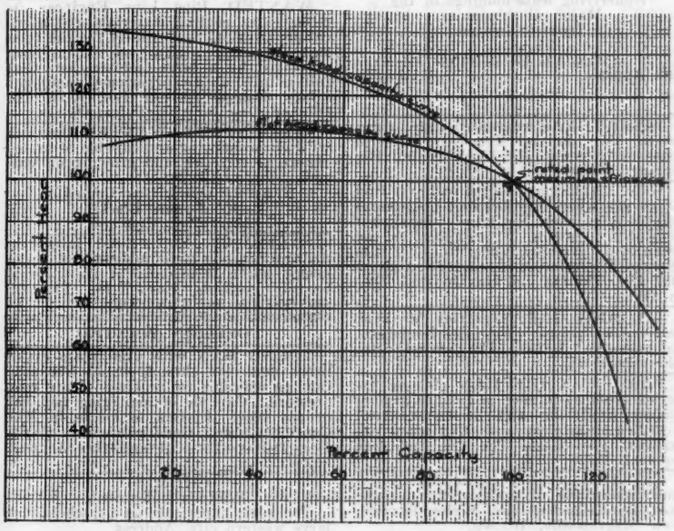
The characteristics of the different kinds of centrifugal pumps is probably less known by the average refinery engineer than steam pumps. When the time comes to make the choice of a centrifugal pump for a given service, the outline prepared by M. D. Aisenstein, chief engineer for the pump division of the United Iron Works, may be helpful. Below is shown a set of curves used in showing the relation of the pump characteristics.

As in the case of steam pumps, Mr. Aisenstein explains that the capacity of a given centrifugal pump roughly varies, inversely with the head. The maximum head which may be produced by a pump impeller may be calculated from the equation

$$H = \left(\frac{D \times rpm}{1840}\right)^2$$

where D is the diameter of the impeller in inches.

Actually the maximum head may be more or less than the calculated value depending mainly upon the design of the impeller and of the casing.



Head-capacity characteristics of centrifugal pumps operating at constant speed.

"The shape of the head capacity curve is greatly influenced by the curvature of the vane, i.e., by the casting angles. For small vane angles the head capacity curve becomes steep, i.e., the head drops rapidly with increased rate of flow. Correspondingly, a runner with relatively large angles will have a flat head capacity curve. The head is changing very little with increased or decreased flow.

"The efficiency of a centrifugal pump gradually rises as the rate of discharge increases. Having passed its maximum point it decreases and theoretically reaches zero, when the head becomes zero. If the pump has to work at variable conditions it may be of advantage to choose a less efficient pump with a wide range efficiency curve rather than a pump with a higher but peaked efficiency curve.

"The brake horsepower at zero discharge is usually a minimum as it is not doing any useful work and is used up to overcome the disk friction, friction in the stuffing boxes and bearings and to whirl around the liquid with eddy formations. As the capacity increases the horsepower rises and may either constantly increase or reach a minimum value and then drop. The last phenomenon takes place when an impeller has a relatively small inlet area and the capacity becomes too great. The pump becomes choked in the suction and no matter how wide the valve on the discharge side of the pump is opened the capacity does not change and the head and power drop rapidly. These are the so-called 'non-overloading characteristics.'

"The total head against which the pump has to work is that made up by the static head and the friction head. The static head is the vertical distance between the free level of the source of supply and the point of free discharge. The static head is independent of the rate of discharge and consequently is constant. The friction in the pipe increases with the rate of discharge and for a given viscosity, gravity, temperature, size and length of pipe line can be calculated by means of various tables and charts.

"When the pipe line characteristics are obtained the head capacity of the centrifugal pump may be plotted on the same sheet. The point at which the pump and pipe line characteristics intersect gives the amount of liquid which will be delivered by the pump, and the head against which the pump has to work. In other words, the pump adjusts itself automatically and with the discharge valve wide open it will deliver a volume of liquid for which the static head and friction head of the pipe line is equal to the total head produced by the pump.

"The capacity can be decreased by throttling the valve on the discharge side. This corresponds to an addition of resistance in the line. The throttling in general is uneconomical and it is always more advantageous to avoid throttling whenever possible by selecting a pump with proper characteristics.

Shape of Head

"The question often arises as to what is the most suitable shape of the head capacity curve for a given condition. For good efficiencies the high head, straight radical flow impeller must have a flat head capacity curve, and the low head. Francis type impellers have a steep head capacity curve. Any deviation from these established shapes results in decreased efficiency. In case the regulation by throttling the discharge valve is anticipated a flat head capacity characteristic is of advantage since the amount of head wasted by throttling will be a minimum for appreciable change in capacity, for example, boiler feed pumps driven by constant speed motors and provided with pressure reducing valves which automatically throttle the excess pressure on the discharge.

"In the event the regulation is done by changing the speed, an impeller with steep head capacity characteristics should be used, which renders the regulation more stable. This applies to the case of steam turbine boiler feed pumps as the pressure required for feeding the boiler is regulated by throttling the steam to the turbine, thus controlling the pump speed.

"When the larger portion of the head against which the pump has to operate is all static a steep head capacity should be used so as to have the shutoff head in excess of the static head. For instance, in a barometric condenser at starting, the circulating pump must deliver water against the static head which is the distance from water level at inlet to the highest point and the friction head which is a function of the capacity. When vacuum is established the pump has to work against the pipe friction and static head which is now the difference between the two water levels, and which is decreased by the amount of vacuum produced in the condenser. Hence there are two conditions which the head capacity curve must satisfy. The best point of efficiency must correspond to the lower head as this is the usual operating point. The head capacity curve must be steep to meet both conditions.

"If the required head capacity curve is too steep it is of advantage when the highest head is desirable to have two pumps operating in series and operating in parallel during normal conditions. When the head is variable for electric motor driven pumps the non-overloading characteristics are of advantage to avoid the danger of burning out the motor.

Viscous Oils

"When the pump handles viscous oils the characteristics change very materially. The effect of viscosity is to decrease the head capacity and increase the power which is mainly due to the increase in disk friction. Experience, as well as theory, indicates that an impeller with flat characteristics will be more efficient when pumping viscous oils than an impeller with steep characteristics. The head capacity characteristics and the efficiency of a centrifugal pump as applied to viscous oils improve with the increase of the size of the pump. In general, pumps up to 3 inches inclusive will handle oils of a viscosity as high as 800 S.S.U. Larger sized pumps can handle oils of viscosities up to 6,000 S.S.U.

"It is important to see that the percentage of power absorbed by the disk friction be a reasonable portion of the total power consumed by the pump. This is especially important when choosing an oil centrifugal pump, because the disk friction in viscous liquids may be many times greater than in water and it is always necessary to determine in advance whether a pump which is good for water service is suitable for oil."

EMPLOYMENT INCREASES

Refinery employment reached a new record in September when 1.7 per cent increase was shown in the number of men employed and 3.4 per cent in the amount of the payroll compared with the previous month. Compared to a year ago the September record places the number of men 17.2 per cent higher than the same month last year and the amount of the payroll is 18.3 per cent higher.

Construction work in many of the larger refinery units no doubt accounts for much of this increased employment and it is probable that a decrease will be shown during the balance of the year as the winter season is approached.

TEST SHALE OIL GASOLINE

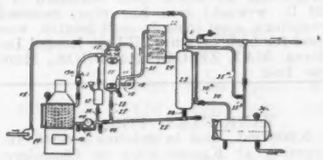
A dynamometer test on refined shale oil gasoline was recently made by the United States Bureau of Mines in cooperation with the State of Colorado, at the University of Colorado. The gasoline used in this experiment was refined by low temperature sulphuric acid treatment. The analysis of the treated gasoline was as follows: A.P.I. gravity, 58; doctor test, sweet; color, 25 Saybolt; sulphur, 0.111 per cent; Engler distillation, satisfactory; unsaturation, about 20 per cent. The dynamometer was a six-cylinder engine used by the university in the automobile testing laboratory. After running the engine on a standard gasoline to insure constant operating conditions, a series of tests was made on the shale gasoline, and the horsepower developed was 30.43 which was an increase of 4.03 per cent over the petroleum gasoline.

Recent Patents

DISTILL WITH MERCURY VAPOR

1,733,143. Method of Distillation. Charles P. Tolman, Kew Gardens, N. Y., assignor to Petroleum Conversion Corp., New York, N. Y., a corporation of Delaware. Filed November 22, 1924. Serial No. 751,425. 2 Claims. (Cl. 196—47.)

1. In the method of treating hydrocarbon compounds to convert them into



compounds of lower molecular weight, the steps which consist in evolving mercury vapor from mercury liquid under conditions producing substantially saturated vapor having a temperature not materially in excess of the desired conversion temperature, introducing said evolved vapor into physical contact with said hydrocarbon compounds in a reaction zone and so proportioning said mercury vapor to said hydrocarbon compounds in said reaction zone as to constitute said mercury vapor the sole source of heat bringing about said conversion reaction, whereby said mercury vapor furnishes said heat at the substantially uniform temperature of its condensation, withdrawing the converted products from said reaction zone and recovering from said products said hydrocarbon compounds of lower molecular weight.

TREAT PRESSURE GASOLINE WITH ACID SULPHATE

1,733,619. Refining of Petroleum Oils. Jacque C. Morrell, Chicago, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed December 9, 1925. Serial No. 74,394. 4 Claims. (Cl. 196—44.)

1. A step in a process for refining the lighter gravity liquid products obtained from the distillation or cracking of petroleum oils, comprising subjecting said lighter gravity liquid products to the action of an acid sulphate in aqueous solution.

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WANTED

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Refined Products Fairly Steady in East

Volume of Business Satisfactory. Trade Sentiment Continues to Improve. Few Instances of Price Cutting

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Nov. 18.—Refined products have held fairly steady in East Coast markets throughout the past week- and the volume of business, on the whole, has been satisfactory. Trade sentiment continues to improve with the betterment in the crude oil market, as reflected by the sharp declines in production which have occurred recently.

While 1929, on the whole, will show up extremely well on the balance sheets at the close of the year, trade feeling appears inclined to the belief that 1930 will be much better. The petroleum industry, it is felt, is now well started on the road toward recovery from the depression incidental to the overproduction of the past several years, and sentiment is extremely optimistic.

The export situation is causing considerable concern in some quarters, notably with respect to export movement of gasoline. Many factors have apparently lost sight of the fact that export gasoline business is becoming more and more of a contract proposition, and that under this condition, spot markets are bound to show periodical inactivity. If the present trend toward contracting continues, it is felt, spot activity will be limited in future largely to buying during periods of peak consumption, with regular shipments against standing orders taking care of foreign distributors' requirements during the balance of the year.

Tank wagon markets in the New York and New England territory are well sustained on both gasoline and kerosene, with instances of price cutting on either few and far between. Atlantic Refining this week reduced tank wagon and service station gasoline prices 1 cent per gallon in Pennsylvania and Delaware to 15 and 17 cents per gallon, respectively.

Tank Car Gasoline

U. S. Motor continues steady at 8¾ cents per gallon at local refinery terminals, and 9 cents per gallon at South Atlantic points. Demand is holding up surrisingly well, considering the unfavorable weather of the past week, and tank car movement is fairly heavy. Holdings of gasoline here are not large, but California motor fuel continues to reach the East Coast in fairly liberal volume, and these added supplies are keeping the market well stocked.

Reports from leading refiners indicate that the 8¾ cents price on U. S. Motor will hold good through the balance of November, and there is some talk of an 8¾ cents market for the balance of the year. While it is too early as yet to forecast what the market may be expected to do during December, the improved picture in the production side of the market has been reflected in a better feeling in gasoline.

Eastern markets are surprisingly free from price cutting at the present time, and the market holds on a more stable basis, perhaps, than at any time previously during the current year. The smaller factors, usually an eighth to a quarter under the price basis maintained by the leading refiners on U. S. Motor are almost without exception holding to the 8¾ cents basis. To this extent, at least, the code of ethics has worked out beneficially in the Eastern marketing situation, and students of the market are inclined to the belief that the tank wagon side of the market will present just as favorable a picture in the near future.

Principal sellers are quoting premium grades of gasoline 3 cents per gallon over the market for U. S. Motor, although in one or two instances the spread has been narrowed down to 2 cents per gallon in both tank wagon and tank car markets. The colder weather which the East has been experiencing during the past week has brought out a much heavier demand for the higher quality motor fuel, and refiners look for further increases in sales over the balance of the year.

Tank Wagon Gasoline

A slight easing off in demand has been experienced in tank wagon markets this week, but notwithstanding this seasonal decline, consumption in Eastern markets is holding up better than had been expected, and sales are running substantially ahead of those of last year. The only price change in the area was a 1 cent cut in Pennsylvania and Delaware by Atlantic Refining.

Some uncertainty appears to exist regarding the probable effects of the sharp stock market price breaks on gasoline consumption in this area. While some interests appear to feel that demand for gasoline will be adversely affected, the general feeling is that little or no reaction in this direction may be looked for. Automobiles have been lifted almost entirely out of the pleasure class during recent years, and are now creating a classification of their own which might be termed "private utilities."

The code of ethics has been reflected by a greater degree of uniformity in retail gasoline prices in the East. Inasmuch as most of the old price cutting "dodges" are banned by the code, sellers who formerly were a cent or so under the general market are now quoting established prices on their products. This, of course, does not hold true of the smaller interests, who are almost always 2 or 3 cents per gallon under the posted quotations of the leading factors.

An interesting development in the tank wagon marketing branch is the general tendency on the part of large integrated companies to extend their chains of company-owned retail filling stations. This is in direct opposition to the recent trend on the Pacific Coast, where several of the large companies have been divesting themselves of retail outlets during recent months. There is quite a good deal of competition among some of the larger companies in the East to either buy outright, or secure on long term leases, strategically located retail stations, or well established independent chains of service stations. Control of such outlets not only assures refiners of adequate distribution for their gasoline output, but also opens up profitable additional distribution for their lub oils, greases and kindred products.

Furnace Oil

Sharply increased demand for furnace oil is reported in the New York and New England markets this week, and while no changes in retail prices have been made as yet, there is some talk of a fractional price advance in the near future.

A large part of the volume on furnace oils in this area is already on marketers' books on seasonal contracts, however, any price advance at this time would affect only a small part of their business. Some consumers, notably large apartment and office buildings, habitually contract for enough furnace oil to take care of 50 to 75 per cent of their season's requirements, and operate in the spot market to cover on the balance.

Kerosene

Sales are well maintained in the tank car market, with refiners continuing to quote water white at 7¾ cents per gallon at refineries. A considerable volume of business has been booked for delivery over the balance of the month at this basis, it is understood. Export movement has picked up somewhat, and the Eastern kerosene market, from the statistical standpoint, is in rather strong position.

Tank wagon demand for kerosene has shown seasonal expansion this week, and the market remains steady and unchanged at 15 cents per gallon in New York territory. Notwithstanding the growing use of domestic oil furnaces, there is still a surprisingly large volume of kerosene consumed in small home heaters in this area each winter, and marketers are keeping their tank wagon delivery services busy in taking care of this trade.

Lubs

No further price changes have materialized in the cylinder stock market this week, although volume of business is reported to have shown some improvement. Domestic buyers are in the market for 600 steam refined in a fairly broad way, with the balance of the buying for prompt shipment or delivery over the remainder of November. Export operators have also come back into the market, although still rather inclined to shop the market in thorough fashion before placing actual business. Bright stocks hold firm and unchanged, with a moderate movement reported. Offerings of bright stocks for prompt shipment are not heavy, however, and the evident shortages of stocks at refineries is tending to hold the market at current levels.

The advances in prices for pale oils last week has had no perceptible effect upon the demand, and refiners reported that there was a good tank car movement during the week just ended. Industrial consumers are drawing stocks against resting contracts in good volume, and there appears to be no perceptible letdown in refinery operations, although the drastic break in stock prices had engendered some fear along these lines. Export movement of red and pale oils is holding up well, with England and the Continent taking stocks in a fair way.

Paraffin Wax

Although no further price declines have materialized during the week, the market is still in unsettled position, and the undertone is rather easy. Domestic consuming manufacturers are operating in hand-to-mouth volume, and there has been a little slowing down on contract movement. This, however, is more or less a seasonable development, and may logically be attributed to a desire on the part of buyers to hold down their inventories to a minimum at the year-end.

Foreign demand for paraffin wax has not been heavy in the local market this week, and it is reported that some of the business which is normally placed at New York is being diverted to the Gulf, where stocks of fully refined are obtainable under a parity with the local quotations on some melting points.

With refinery stocks of paraffin wax rather heavy, jobbers are not inclined to operate far in advance of actual requirements, and there is an almost total lack of speculative interest in the market at the moment.

Fuel Oil

The sharp drop in domestic crude production has tended to create a better feeling in the fuel oil market, as has the upward revision in crude prices in California. Some fear had been felt in Eastern markets that the low basis for California crude, if continued for long, would result in a much heavier movement of Pacific Coast fuel oil to Eastern markets.

Leading refiners continue to hold bunker "C" unchanged at $1.05 per bbl. at refineries, and $1.10 per barrel barged alongside within the harbor limits. While a large part of the local marine business is already under contract at $1.05 for 1930, it is not felt that there will be any change in the spot quotation, during the early part of the new year, at least.

Some interests had been inclined to look for a market of $1.15 to $1.25 on bunker "C" here by the close of the current year, but is generally conceded now that an advance is out of the question, and that the market is much better left alone at the current price level.

Demand has been well sustained on the part of both marine and industrial consumers in this area during the week, and the heavier consumption of furnace oil incidental to the colder weather has aided in bringing about a better feeling with respect to the market outlook.

Gas Oil

Growing demand for 32-36 recycled gas oil from the large artificial gas companies is reported in the local market, which holds steady at 5¼ cents per gallon at refinery terminals on the part of the larger companies, with smaller interests willing to sell at an eighth to a quarter cent under this figure.

Some interest is shown by gas oil men in the possibility of the piping of natural gas to New York City for distribution here or for use as an enriching mixture in natural gas manufactured by the large public utility companies in this area, but it is generally felt that such a development is at least several years away, and no immediate concern is felt in that direction. Refiners continue to withhold stocks of straightrun gas oil from the market, and it is said that all of the current local output of this product is being run to the crackers. Low-grade gas oil continues in good demand as a domestic furnace oil.

Petrolatum

A routine movement is reported into domestic consuming channels, with the market holding at unchanged levels and a fairly steady tone in evidence. Lily white and snow white are both in demand, and there is also a fair call for the cream grade. Dark green and the amber grades are meeting with but a moderate call on the part of the domestic trade, although there is a fair export movement recorded. Pharmaceutical manufacturers, both in this country and abroad, are using petrolatum in ever-increasing quantities, and this is accounting for much of the movement in the higher qualities.

Diesel Oil

All of the leading factors in this area continue to hold the market on Diesel oil steady at $2 per barrel, refineries, with a good movement reported. Notwithstanding the attractive level at which Diesel oil may be bought in California there is only a moderate movement of this fuel to the Atlantic seaboard at the moment.

Refiners expect to book a substantial volume of contract business for 1930 with the large marine interests, and current indications are that most of this business will be written on the basis of $2 per barrel, the present spot price. Most of the large companies engaged in the trans-Atlantic trade have shown a tendency to contract for their requirements on a yearly basis, and Diesel oil is becoming less and less of a spot market proposition in this section of the country. Production of Diesel oil in the East this year has increased substantially over that of previous years, and further gains are looked for in 1930 as the demand for this oil continues to show steady expansion.

Export Markets

Another week of quiet in the Gulf Coast gasoline market has been in

(Continued on Page 153)

Contract Shipments Bulk of Business

Spot Sales in Chicago Fair Compared to Previous Weeks. Prices Unchanged. Furnace Oil Buying Light

By J. B. Waldo

CHICAGO, Nov. 18.—Shipments to contract customers make up the bulk of the gasoline business out of this market. Spot sales today were fair by comparison with previous weeks, the number of larger spot buyers being much less than formerly. Prices were unchanged, the major refiners holding U. S. Motor gasoline at 7½ cents with others selling at 6¾ cents and a little higher but today the three-quarters-cent price was that at which jobbers would readily place their orders. The higher tests were in a little more demand but at the same prices as previously. Kerosene is entirely neglected and some of the refiners have reduced their prices this morning to try for more business. One refiner is now quoting 4⅜ cents for his spot kerosene.

Local distributors of furnace oils were not buying as the demand is light and they have such ample supplies that some of the larger have stock to move in tank car lots. A limited number of cars of distillate and gas oil were taken on contract account by outside distributors.

The price situation showed no change today, distillates being easy and gas oils fairly firmly held. Some fuel oil contracts for moderate quantities, usually for several months delivery, were closed with various industries indicating a wide if not very active spot demand. Sales were generally made on the recent price basis as the industrial fuels are no higher nor noticeably lower today. Local gasoline demand is restricted by bad weather today.

Quiet Week

Last week was a quiet one in this market as regards new business. There was a great deal of discussion of the tank wagon situation and many conjectures as to when the expected territory-wide reduction would be made. The great majority can see nothing in the reduction made locally but a forerunner of a general reduction. There are a few who still believe factors are to be found that may make it possible to hold that scale at least for some time and possibly until the new year, which they point out is only some six weeks distant when there is, in many seasons, a better market. The reason for the local cut which went into effect on last Monday, November 11, is doubtless the many cut prices prevailing in this city. A very careful survey has been made by one of the major companies in which actual purchases were made from a very large number of stations and garages and an accurate check of prices obtained from other stations. This survey revealed a really surprising condition. It would seem that outside of the major distributors' outlets the majority of the stations were selling at less than the normal price for this city and it was also found that many sales were being made at less than the posted price of the station from which the purchase was made. The Sinclair Refining Co., which announced the cut, states that the reduction was made because of the situation here and to compete with the prices made by the cut price dealers.

Spread Too Wide

Such a condition could only be possible when the spread between the refinery price plus freight to Chicago and the price to the public is so wide that it really invites a cut price by making it possible for the small distributor to reduce his selling price and still retain a profit for himself. Several sales managers in charge of tank car sales have stated that the whole trouble was "too much gasoline." Most of them frankly admit they are selling very little, some say practically nothing to spot buyers, and, although their contract business is very satisfactory, they still have gasoline to sell. But they are obliged to meet the competition from the smaller refiners who are without established outlets in the shape of owned or controlled stations or a list of contracts. They believe if some of the output could be taken off the market there would be a much better situation as to tank car prices. There should be some adjustment of refinery runs to actual consumption, they claim, but just how to arrive at the adjustment is the question.

A factor overlooked by some is that the major distributors are securing a larger percentage of the business in this territory by the addition to the number of their outlets. The increases in gallonage by the major companies in this territory is much in excess of the average increase over this territory. This result has been brought about very largely through the purchase of companies and by the building of new stations. The smaller operators, especially those refiners without owned stations or numerous contracts, have a reduced list of distributors to solicit for orders. The result is greater and greater concessions of some kind are offered for business. Even the major distributors with or without refining sources of supply in the territory, are pushing hard for some part of the independent business. The managements of some of the large refining companies have been asking their sales organizations recently why they are not able to sell more of the independent jobbers. The answer is that they cannot meet the prices quoted or the allowances made by other refiners.

To Hold Business

As an example of what is being done by large refining organizations to hold their business with the independent dealers, a dealer stated that he had several of the largest refiners selling in this territory all after a contract with him. He finally decided to renew with his present company as it agreed to give him a very favorable contract, just as good a contract as any of the others would sign with him and in addition gave him a very good allowance for advertising. He claims that the latter is one-quarter of a cent on gasoline and 2 cents a gallon on refined oils. He remarked that one could not expect to get more than that. With all of this pushing for business the returns to the refiners shrink. The result is that certain parts of the country are simply dumping grounds for excess gasoline. Ohio has been in this position for some time. To Ohio has been added parts of Michigan and of Indiana and Chicago may be included in the list if conditions keep on as they are now. Dealers state that they are able to purchase U. S. Motor gasoline run in the Chicago district delivered in Chicago for 9¼ cents, while the price in Detroit is but 9½ cents delivered Detroit. Not all buyers can purchase at these prices but the dealers whose trade is wanted can buy at these prices. As the sales manager said, there is too much gasoline being pushed for sale right now and has been for some time to permit of securing profitable prices for the refiner.

Price Situation

In spite of much bad weather and the tank wagon price cuts, the price situation held very well last week. Towards the close of the week there was better buying in the spot market, no large business but more orders and less shopping around for prices. Many of the orders were wanted immediately. The major refiners continued to ask 7½ cents and did a little business with some dealers at that price but the bulk of the spot business went to smaller refiners and to marketers who were selling at 6¾ to 7 cents with attractive orders being taken at 6⅝ cents although there was seemingly less of this business being taken than early in the week when the local tank wagon drop was interpreted to mean an immediate cut over the territory. Dealers are still ordering only on a hand-to-mouth basis but their needs are often urgent for some addition to their supplies and good material for the season and quick deliveries are more important with many buyers than a lower price for less assured quality and possibly several days' delay in delivery. However, the volume of this spot business was small as a whole and indicated more the individual ideas of the buyer and seller than any distinct market trend.

The higher gravities are firmly held but the demand is not wide nor active. The antiknock gasolines are still very popular with motorists and the distributors are making the most of them. Some of the largest distributors in this territory are pushing their own antiknock brands and at least two of the prominent integrated companies have put on an extensive campaign to increase the sales of regular gasoline which they claim has been greatly improved and is now the equal as a motor fuel of any special gasoline. That is the sense of the publicity of these companies. There is danger of confusing the motorists by offering too many grades of gasoline and some of the prominent sellers are now only pushing the sale of the most timely material. So far there has not been enough low temperature to cause a real demand for winter motor fuel. Natural gasoline continues to move slowly here, jobbers apparently doing less blending. There has been a little inquiry for export material. Taken as a whole the gasoline business last week was hesitating and very limited, the needs of the distributors dictating the volume of their purchases, and they are making these needs as light as possible.

Kerosene and Furnace Oil

There was nothing noteworthy in the kerosene situation here. The product was neglected by jobbers for the most part. Several refiners are long on material which they would like to move but find it difficult. Sales were mostly at 4½ to 4⅝ cents with some of the larger refiners holding for 5 cents although others of the group were selling at 4½ cents for the full 41-43 product.

The furnace oil market was still waiting for colder weather and hoping the season would be an exceptional one and the brisk snappy weather would come before it does in the average season. The distillate market was distinctly easy in tone and prices quoted showed a decline over the week. At least one of the larger refiners has chosen the present time to come on the market with its first offering of distillate. The product is a 38-40 distillate with a flash of 175 degrees and light straw color guaranteed to be sweet and odorless. No quotations had been made of the price. The 4-cent price which was the low of the market some weeks ago is now the high price for a good 38-40 straw distillate and material that is guaranteed to be satisfactory is being sold at 3¾ cents to distributors with some 3⅝-cent oil being available. There have been very numerous rejections of shipments of distillate, usually on account of odor or flash and perhaps the buyers are also a little hypercritical on account of the possibility of replacement at a lower cost. Local dealers are well stocked and are not buyers except at bargain prices but there has been some call from the country for shipments on contract and many of these orders have been wanted in a rush.

Gas Oil

Gas oil of the straightrun variety is not strong here and prices are a little lower for the U.G.I. product. The demand from the gas makers is light, not that they are not using as much oil as is usual at this time of the year, but many are well supplied by earlier contracts and previous purchases and are inclined to hold back from ordering, claiming that lower prices will prevail. Zero gas oil is fairly steady, especially for the better grades. While the dark gas oil is selling at around 3 cents and the ordinary straw gas oil with a fairly low flash at 3⅛ to 3¼ cents, a really choice straw gas oil with a really low flash is hard to buy and sales of small quantities have been made as high as 3½ cents. But such a price is exceptional right now when the market is waiting for cold weather. Gas oil with a higher sulphur content is to be had at a little less than the above prices which are for good furnace material. The heavier gas oils and the light fuel oils which overlap in gravity are in good demand. Twenty-eight-thirty fuel oil is especially wanted but, whether it is because of the lack of cold weather or because some refiners are willing to sell some of this material right now, prices are a little easier for the time being. Some material in this gravity has been sold at $1.10 although refiners are holding in some cases for $1.20. Much depends on the refiner. If he has a large distribution of his own or a large number of dealers who have contracted for their supplies, that refiner will probably be prepared to carry the stock to cold weather. On the other hand, the refiner without dealers or distribution is ready to sell at the present market.

Fuel Oil

The industrial demand for fuel oil is large but the number of buyers with contracts which care for their needs is also considerable so the average seller of fuel oil reports a quiet spot market. The demand is also more or less uneven. Buyers take on material when they have to and hold off from buying just as long as they can. The result is they have passed by some good purchases by waiting and had to buy at no better, if as good, rates when they finally placed the order. Then if there is any delay or any mistake in shipments there is occasion for a lot of trouble. Considering the contracts the volume of business is large. Occasionally some buyer has requested that shipments be held up or the quantity diminished but there are more concerns that are adding to their volume of fuel oil bought than decrease their takings. The general business is good and likely to continue as the orders which are now being filled were placed some months ago. Orders are now being solicited on large undertakings for next spring and generally with success although some future business has been deferred. There has been some holding back of the consumption of heavy fuels for heating and this has resulted in some accumulations. The market is hardly as strong as it was four weeks ago when the prices were advancing, as quite a lot of oil has been brought to market. The offerings were generally snapped up quickly if the prices were such as to suggest the probability of a profit later in the season. One of the West Texas plants had quite a volume of 17-20 gravity fuel oil of good quality which was quickly absorbed by local marketers and other lots went the same way.

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THE TRADE MARK

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Natural Gasoline Manufacture

CURTAILMENT TO REDUCE CALIFORNIA PRODUCTION

LOS ANGELES, Calif., Nov. 16.—One of the most encouraging features in connection with the crude oil curtailment program is the sympathetic substantial reduction effected in the production of natural gas. The cut in gas production averages approximately 25 per cent at Santa Fe Springs, 20 per cent at Elwood, 15 per cent at Long Beach and about 10 per cent at Seal Beach where the Continental Oil Co. has been repressuring the Selover zone.

To the casual observer this does not mean very much but a closer survey reveals that this reduction in gas production has also reduced the amount of natural gasoline produced in each area. It is obvious that this reduction will strengthen the gasoline market by eliminating some of the distress gasoline which has been dumped on the market in the past.

Large Increase

In the past 21 months the total output of natural gas has more than doubled and production of natural gasoline is only a step behind. In January, 1928, California produced 26,778,762,000 feet of natural gas and 999,437 bbls. of natural gasoline. The output jumped to 36,019,033,000 feet of natural gas and 1,186,714 bbls. of natural gasoline in December, 1928. Deep zone development at Santa Fe Springs was just becoming an important factor at this time and the effect of this work is quite evident when comparing the production registered during September, 1929. During this 30-day month California plant operators recovered 1,737,879 bbls. of natural gasoline and treated 54,378,695,000 feet of natural gas.

Long Beach held fairly stable during this period as it produced 437,216 bbls. of natural gasoline in January, 1929, and 459,947 bbls. during September, 1929. Production at Santa Fe Springs, on the other hand, jumped from 214,397 bbls. of natural gasoline in January, 1929, to 586,994 bbls. recovered in September. During this period gas production at Santa Fe Springs increased from 7,170,409,000 feet in January, 1929, to 19,297,421,000 feet in September, 1929.

It is obvious that any substantial reduction effected in the production of natural gas at Santa Fe Springs and other flush fields will be similarly reflected in state production, especially in view of the fact that Santa Fe Springs and Long Beach were yielding more than half of the total output of natural gas and natural gasoline produced in California up to the time that crude oil curtailment went into effect early this month. The next ninety days, therefore, should see a substantially smaller production of crude oil, natural gasoline and natural gas and it is quite possible that the curtailment period may be extended after the expiration of the existing time limit, unless developments in the meantime remove the necessity of artificial curtailment.

ANDERSON APPOINTED SUCCESSOR TO WOOD

C. W. Anderson has been appointed sales manager of the Chestnut & Smith Corp. of Tulsa succeeding A. F. Wood who resigned to become vice president of Hanlon & Buchanan, Inc. Mr. Anderson for the past two years has been sales manager of the Naturaline Co. of America an affiliated company of the Chestnut & Smith Corp. He will continue to have charge of sales for that company.

Previous to his connection with the Naturaline company Mr. Anderson was assistant manager of tank car sales for the Marland Refining Co.

SHARP REDUCTIONS IN SEMINOLE PRODUCTION DUE TO CURTAILMENT

For the first time in the history of the field, natural gasoline production in the Greater Seminole area of Oklahoma, has experienced a substantial decline. Due to the proration measures which have been made effective in that area, natural gasoline production in a check of all operators completed the latter part of last week, showed a production of 933,000 gallons daily.

This total, represents a reduction of 219,500 gallons under the daily total of 1,152,500 gallons which was effective the middle of October. The production is now under 1,000,000 gallons daily for the first time in the past year. Natural gasoline production climbed to the 1,000,000-gallon a day total, the latter part of last year and has since shown a remarkably steady average around that total.

Since the latter part of October, however, practically all manufacturers have seen their output decline due to the action of producers who agreed to curtail their crude oil oerations 20 per ectn in all parts of the field with the exception of the East Earlsboro area where the curtailment is 40 per cent.

In the history of the Greater Seminole area there have been other curtailment programs in effect but this is the first time that the action of the producers has seriously effected the output of natural gasoline. In the early history of the field the casinghead gas supply generally exceeded the plant capacity and in a curtailment program there was still sufficient gas to operate the plant at capacity.

Curtailed Operations

For several months in the older pools there have been very little or no excess gas supplies so that when the latest curtailment program was made effective it has been reflected in the output of gasoline. Under the agreement operators can use their own judgment as to how the curtailment plan shall be made effective. In some cases the wells are being shut down completely for the length of time necessary to meet the 20 per cent requirement. This has resulted in the complete shut down of a few plants.

This method of curtailment works a special hardship on the gasoline manufacturer for not only does he lose his output during the period the wells are shut down but he also loses additional time while his plant is starting up. Some of the operators are working out a method of curtailment in which there will always be enough wells operating to keep the gasoline plants in operation. This permits a uniform operation at reduced capacity.

The major manufacturers have suffered the most up to the present time. The output of the Sinclair Oil & Gas Co. dropped from 250,000 gallons daily the middle of October to 203,500 gallons in the latest report. The company's output in the Seminole City has experienced a substantial slump. The production of the Carter Oil Co. dropped from 184,000 gallons daily to 135,000 gallons daily.

The Gypsy Oil Co., Victor Gasoline Co., Independent Oil & Gas Co. and the Skelly Oil Co. are among the other large manufacturers whose production has declined.

The Amerada Petroleum Corp. is one of the few plants whose production has increased. The company has completed a new plant in the Seminole City area with a capacity of 10,000 gallons daily. The plant is located in the SW NW Section 19-9-5. This plant is the oil absorption type.

Although the Skelly Oil Co. has a new

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NATURAL GASOLINE PRODUCTION IN GREATER SEMINOLE

	Seminole City	Bowlegs	Earlsboro	Little River	St. Louis Pearson	Maud	Mission	Total
Amerada Pet. Corp.	.....	7,500	14,000	.....	.....	25,000	9,000	55,500
Aircraft Gasol's Corp.	.....	.....	.....	3,000	.....	.....	.....	3,000
Barnsdall Oil Corp.	.....	.....	16,000	.....	.....	11,000	.....	27,000
Carter Oil Co.	†100,000	5,000	.....	30,000	.....	.....	.....	135,000
Crosbie & Moran	.....	.....	26,000	.....	.....	.....	.....	26,000
Empire O. & R. Co.*	29,000	47,000	.....	5,000	.....	21,000	.....	102,000
For'st E. Gilmore Co.	.....	8,000	.....	.....	.....	.....	.....	8,000
Gypsy Oil Co.	.....	.....	.....	50,000	.....	.....	60,000	110,000
Independent O. & G.	.....	.....	.....	23,000	.....	.....	5,500	28,500
Magnolia Pet. Co.	.....	.....	6,000	.....	11,000	.....	.....	17,000
Moran & Gillespie	.....	.....	.....	.....	26,000	.....	.....	26,000
Pure Oil Co.	13,000	6,000	.....	8,500	6,000	.....	.....	33,500
Powers, M. F.	.....	.....	.....	.....	3,500	.....	.....	3,500
Shell Pet. Corp.	.....	5,000	.....	.....	30,000	.....	25,000	60,000
Sinclair O. & G. Co.	75,000	87,000	6,500	.....	35,000	.....	.....	203,500
Skelly Oil Co.	.....	.....	32,000	.....	.....	7,000	.....	39,000
Victor Gasoline Co.	3,500	14,000	14,000	24,000	.....	.....	.....	55,500
Total	220,500	179,500	114,500	143,500	111,500	64,000	99,500	933,000
Prod. Sept. 16	304,000	169,600	142,500	218,400	159,100	60,500	98,000	1,152,100

*Includes production of Indian Territory Illuminating Oil Co. †Includes production in Searight Pool.

A PRACTICAL SUGGESTION

TANK REPAIR

Storage tanks or other cylindrical vessels collapse or are "sucked in" because a regulating valve fails to function or an operator fails to take proper precautions after heating or steaming. Tanks have been taken out of service and junked which might otherwise have been repaired and rendered useful. It is not uncommon to see tanks pulled in until the top of the tank touches the bottom.

The collapsed tank can be quickly and effectively repaired by utilizing water pressure to expand it. Single stage centrifugal pumps will not give sufficient pressure, but ordinary steam pumps or reciprocal power driven pumps will give the desired results. As the pressure is increased the tank will gradually assume its original shape. If tank is buckled very much, leaks around rivets may have developed. In that case, the leaks may have to be welded before enough pressure can be secured to force tank out into its original shape.

Practical suggestions by those connected wi h the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

ORIFICE METERS SHOULD BE TESTED FREQUENTLY

By R. A. Boyd

Columbian Gasoline Corp.*

It might be well to give a brief description of an orifice meter and the principle of operation before entering into a discussion of installing and testing.

A mercury float differential gauge is primarily a U tube constructed of semi-steel and steel in which mercury is used as a seal. A cast iron or steel float is placed in the high or low pressure column and is connected by a lever and shaft working through a stuffing box with the pen arm. The pen of the pen arm records the differential or difference in pressures on either side of the orifice on a revolving chart which is driven by a clock.

Orifice meters are installed to measure fairly uniform flows of gas or in multiple if the maximum to minimum flow exceeds the capacity of a single meter. A combined installation of a 10-inch and a 100-inch meter increases the capacity 3¼ times.

There are two methods of making the meter connections to the line, flange connections at 2½ and 8-pipe diameters from the orifice. One is if flange connec-

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*Plant foremen's meeting.

CALIFORNIA GASOLINE MANUFACTURERS MEET

A large number of California gasoline manufacturers attended the annual banquet of the California Natural Gasoline Association which was held at the Biltmore Hotel, Los Angeles, Calif., November 14. The manufacturers were the guests of associate members consisting of supply and engineering concerns connected with the natural gasoline industry.

R. E. Beckley, manager of the Standard Gasoline Co. and president of the association, presided at the banquet. The principal address of the evening was that of Dr. Rudolph Duenweg von Nurnberg, associate professor of organic chemistry, University of Gottingen, Germany. He spoke on "Recent Developments in the Manufacture of Synthetic Gasoline." Several entertainment features were provided.

AMERADA DISMANTLES PLANT

The Amerada Petroleum Corp. is dismantling two of its gasoline plants. One of the plants is located in the Tonkawa Field (Section 34-25n-1w). This plant which was operated for several years has a rated capacity of 10,000 gallons daily. The McMan Oil & Gas Co. of Tulsa, which operates a plant in the same field (Section 11-24-1), has taken over the gas contracts of the Amerada corporation and also part of the gathering system.

The Amerada corporation has also dismantled its Kansas plant located near Keighley in Section 27-27s-7e. This plant was the oil absorption type and had a rated capacity of 4,000 gallons daily.

A large part of the equipment from both Amerada plants was moved to the Greater Seminole area where the corporation has completed a 10,000-gallon plant in Section 17-9-5.

NEW INDEPENDENT PLANT

The Independent Oil & Gas Co. is operating a new oil absorption plant near Wewoka, Okla., in Section 15-18-7. This plant, which has a capacity of 7,500 gallons daily, operates with gas from a natural gas line of the Independent company extending from the Holdenville area to the Seminole Field.

Brief Items for Petroleum Refiners

Standard of Kansas Enters Production Field in Oklahoma

The Standard Oil Co. of Kansas, a refining company with headquarters at Neodesha, Kans., has acquired control of the Tulsa Oil Co., according to an announcement by A. F. Hopkins, president of the Standard company. The Tulsa company is a producing concern with a large amount of undeveloped acreage. The acreage is located in Oklahoma and Texas with a small settled production. The Standard company acquired a stock interest several months ago but no announcement regarding plans has been made previously.

B. B. Blair of Tulsa will continue as president of the Tulsa Oil Co., which will be operated as a subsidiary of the Standard of Kansas. Johnson Hill is a director of the Tulsa company. Both Messrs. Blair and Hill are widely known in production circles. Both were connected with the Waite Phillips Co. previously to its merger with the Barnsdall Oil Co.

The purchase is of special interest because it marks the entry of the Standard of Kansas in the producing end of the oil business. The company for many years has operated a 10,000-bbl. refinery at Neodesha. Its activities were largely confined to the operation of the refinery.

"While we have not yet made definite plans for exploitation and expansion we propose to enter the producing field and hope to have a comprehensive drilling program under way by spring," Mr. Hopkins stated. It was also stated that the directors of the company have under consideration the expansion of marketing facilities in northern Oklahoma. The bulk of the refinery gasoline output in the past has been sold under contract to the Standard Oil Co. of Indiana.

BELL STARTS BUILDING PLANT AT PAMPA, TEX.

The Bell Oil & Gas Co. of Tulsa has started the construction of a 4,000-bbl. refinery at Pampa in the Texas Panhandle. The plant will have a capacity of 4,000 bbls. daily. A tube still and towers are being installed. The plant will be in operation about March 1.

According to officials of the Bell company the plant probably will be operated under the name of the Standard Petroleum Refractionating Co.

The plant will be operated with high gravity crude from the Gray County Field. The owners expect to secure a yield of 41 per cent gasoline, 9 per cent kerosene and 20 per cent gas oil from the operation of the plant in a skimming operation. A cracking still probably will be installed later.

The Bell company at present operates a refinery at Grandfield, Okla. The company over the past two years has operated a pipe line gathering system in Gray County. The line at present, has capacity of 6,000 bbls. daily and this is to be increased to 12,000 bbls. daily. The company has been selling crude oil to several refiners, shipments being made from the field in tank cars. With the increased gathering capacity the company will be able to continue deliveries to these companies in addition to supplying the requirements of its own refinery.

BUYS HOGSHIRE OIL CO.

CHICAGO, Nov. 16.—The Mid-Continent Petroleum Corp. has recently purchased the distributing business conducted by the John Hogshire Oil Co., at Lebanon, Ind.

TO START IMMEDIATE CONSTRUCTION OF NEW REFINERY IN VENEZUELA

NEW YORK, Nov. 19.—The Venezuelan Royalties Corp. has received a permit from the Venezuelan government for the construction of a refinery on the Paraguana Peninsula and will start immediate construction of a 10,000-bbl. topping plant to which later will be added an additional 10,000-bbl. unit including Dubbs cracking units. The contract for construction of the refinery storage for 320,000 bbls. of crude and products and 2,200 feet of loading pier has been let to the Southwestern Engineering Co. of New York and Los Angeles.

The site for the refinery was acquired from Pantepec interests and the plant will cost more than $2,000,000 for the first topping unit. The refinery location is the closest deep water point to production and crude will be moved to the Paraguana Peninsula plant from Lake Maracaibo by way of shallow draft tankers. David C. Reid, incorporated, with headquarters in New York, will market the company's products.

The Venezuelan Royalties Corp. recently increased its capital from $5,000,000 to $7,000,000 and is working in conjunction with the Societe de Prospection de Petrole et de Mineraux Par Les Procedes Geophysiques and Societe Francaise Recherches Aux Venezuela, two French companies which recently entered Venezuela representing the first French effort to develop their own crude production.

The Paraguana refinery will use Venezuelan Royalties Corp.'s production as well as production which the two French companies expect to develop. Development work is now under way in the Mene Grande, Mara and Urdanet Fields with satisfactory showings in several wells all of which are located close to proven production. The French companies have inquiries in American market for pipe for a line to connect the producing properties with Lake Maracaibo where crude will be loaded in shallow draft tankers for transmission to Paraguana refinery. Both French companies are understood to have the backing of the French government which is anxious to stimulate French production of crude but the government is not financially interested owing to Venezuelan laws which prohibit development of any national resources by other countries.

ANNOUNCE PERSONNEL OF NEW REFINING COMPANY

Alfred J. Deischer of Winfield, Kans., former manager of the Empire Gas & Fuel Co. of Bartlesville, Okla., F. W. Camp and Roscoe Nelson of Portland, Ore., head a group of bankers who have organized the Laurel Oil & Refining Co. to build a refinery at Laurel, Mont. As previously announced the plant will involve an expenditure of approximately $1,000,000. F. H. Johnston has been appointed sales manager of the company.

The plant, which will have a capacity of 1,000 bbls. of gasoline daily, will be one of the largest refineries in the Northwest. It will be located on a 103-acre site adjacent to the city of Laurel and near the Yellowstone River.

The refinery, which will be designed and built by the Smith Engineering Co., will consist of a topping and reducing still which will reduce the crude oil to a heavy residuum. This residuum will then be transferred to a continuous coking or asphalt plant. The Donnelly cracking process will be used at the refinery. All the necessary auxiliary equipment and storage facilities will be installed. The company later expects to install a lubricating oil plant.

NEW CROSS REFINERY

CHICAGO, Nov. 16.—The Henry H. Cross Co., of this city, is now operating its fourth refinery. The fourth plant owned and operated by the company is at Dupo, Ill., just outside of East St. Louis where there is a limited crude oil production. The plant is a 1,000-bbl. skimming plant and the crude is obtained from the local field through its own gathering lines. The Ohio Oil Co. also has gathering lines in a part of the field. The other refineries operated by the Henry H. Cross Co., are located at Smackover, Ark., Joliet, Ill., and Muskegon, Mich.

BUYS CONTROLLING INTEREST

Wirt Franklin, widely known independent oil producer of Oklahoma has purchased the stock of the John M. Cameron estate in the Wirt Franklin Petroleum Corp. of Ardmore, Okla. The company for several years has operated a refinery at Ardmore with a large number of service stations and dealer outlets in Oklahoma. The company was formerly operated under the name of the Cameron Refining Co.

With the purchase of Cameron stock, Mr. Franklin now owns a controlling interest in the corporation. He will continue as the active head of the corporation's refining and marketing activities. C. A. Franklin was recently appointed refinery sales manager succeeding D. A. Corcoran, vice president, who resigned to engage in private business.

TEXAS-EMPIRE OIL FOR GLOBE REFINING

CHICAGO, Nov. 18.—The Globe Refining Co. of Illinois entered into a contract with the Texas-Empire Pipe Line Co. for the delivery to the refinery at Lemont, Ill., of 5,000 bbls. of high grade Mid-Continent crude daily. The connections will be completed during November and the refinery will be operating on the new crude December 1.

Changes have been made at the plant which make it a modern refinery in every respect. The Globe interests are now operating three plants in Oklahoma. According to G. G. Woodruff, vice president, the new crude supply for their Lemont refinery will place them in a strong position to serve the independent jobbers and industrial users of petroleum products of the entire Middle West.

The Lemont refinery for several months has been operating with crude oil from the Muskegon Field of Michigan. The production of this crude oil has increased to the point where a source of supply was necessary.

INSTALL VACUUM STILLS

NEW YORK, Nov. 18.—Two companies are reported to have closed contracts for the installation of large vacuum distillation units at their refineries. The Gulf Refining Co. will install two units at its Port Arthur, Tex., refinery and the Standard Oil Co. of Ohio two units at its Ohio refineries. These units will be used in the manufacture of lubricating oils. Foster Wheeler equipment is to be installed by both companies.

RICHFIELD MAY ACQUIRE RIO GRANDE OIL CO.

NEW YORK, Nov. 18.—Richfield Oil Co. of California will shortly announce the acquisition of control of the Rio Grande Oil Co., it is reported in authoritative quarters. James A. Talbot, chairman of the board of the Richfield company, has been in New York for the past week conferring with Rio Grande officials. The Rio Grande company has refineries at Vinvale, Calif., Phoenix, Ariz., and Sour Lake, Tex., and operates two casinghead gasoline plants and has a half interest in another with combined daily capacity of 60,000 gallons with considerable crude production. The company and its subsidiaries constitute a complete unit for producing, refining and marketing. The Rio Grande distributes under the trade names of Speedine and Rio Grande.

At last reports the company had storage for 1,695,000 bbls. of crude and refined and approximately 45 producing wells in California and Texas. The company controls the entire output from more than 1,000 acres of leases in the Elwood Terrace Field at Santa Barbara under contract with the Barnsdall, joint owner with Rio Grande, and has 3,500 acres of royalty or fee properties in Texas in addition to 48,000 acres undeveloped leases in California, Texas and New Mexico. The Rio Grande has a modern loading terminal at Long Beach, Calif., and considerable pipe line and tank farm storage facilities in the State. The company this year installed cracking plant at its Vinvale refinery and has its own retail distributing system of about 50 stations in California, Texas and New Mexico.

STANDARD BUYS TANKERS

NEW YORK, Nov. 19.—The Standard Oil Co. of New Jersey announces it has contracted with British, German and Italian shipbuilding companies for the construction of six largest oil tankers ever designed for the European trade. The ships will be approximately 16,000 tons each and will be used in Scandinavian, English, German, French and Italian trade. Two of the new tankers will be built in England, three in Germany, and one in Italy. The total cost of the new tankers is estimated at $8,000,000.

BUYS YUBA REFINERY

HOUSTON, Tex., Nov. 18.—Sale of the Yuba Oil Refining Co. plant at Nacogdoches, Tex., to Bradley Cox of Los Angeles, Calif., president of the Bloomfield Gas & Oil Corp. of New Mexico has been learned here. The plant formerly was owned by Mrs. Phoebe Rideout, also of California. The plant, which has a capacity of 100 bbls. daily and which formerly was operated to refine lubricating oils from the oil produced in the shallow field at Nacogdoches, has been shut down for some time. The new owner says he will make necessary improvements and start up the plant.

THREE EXPORT CARGOES

NEW YORK, Nov. 18.—Three cargoes of gasoline for shipment to France have been booked within the past few days it is reported here, the Sinclair Refining Co. taking one of the cargoes and the Atlantic Refining Co. contracting for the other two. The business was placed at the Petroleum Export Corp.'s prices but it is not yet known whether the gasoline will move from the Atlantic Coast or the Gulf.

REFINED PRODUCTS ARE FAIRLY STEADY IN EAST

(Continued from Page 148)

evidence this week. The inquiry for a 6,000 ton cargo of 64-66, 375 endpoint gasoline for December shipment to France had not produced any business, and it was believed that the inquiry had been put out in an effort to sound out the market.

A number of inquiries for fuel oil for 1930 delivery are reported in the market from sugar companies and other commercial enterprises operated in Cuba and the West Indies. The market for bunker "C" at the Gulf Coast appears rather steady at 70 to 75 cents per barrel, and it is reported that sellers are unwilling to go under the inside figure, even on large-scale contract business for the coming year.

Recent heavy gasoline purchases credited to the Export Association in Group 3 territory have apparently cleaned up surplus stocks, and although the Mid-Continent market is still a half to three quarters cent per gallon under the Gulf export basis, no further direct purchases under the Association scale have been made.

The tanker market is again working into higher ground, and bottoms for trans-Atlantic transportation of gasoline and kerosene now command higher prices. This development will probably further affect export demand for American refined products. "Dirty" tankers are also higher, both out of the Gulf and at East Coasts ports, which will have its effect upon export movement of crude, fuel, and lub oils.

A moderately active demand for refined products for export was reported in the East Coast area this week. There has been a good movement of motor fuel to South America, and fairly heavy shipments have also gone out to South Africa and the Far East. Cased products, both gasoline and kerosene, appear to be coming in for better buying, and the market remains in steady position.

Petroleum Exports

The following table shows principal exports of refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week Ended		
	Nov. 9	Nov. 2	Oct. 26
Gasoline	354,200	790,100	212,400
Naphtha	494,300	303,400	815,600
Kerosene	150,000	45,700	64,300
Fuel oil	10,100	262,800	222,000
Lubricating oil	705,900	871,500	1,734,800
Petroleum, refined	4,619,800	1,443,900	1,810,700
	Pounds		
Petrolatum	127,200	53,000	14,200
Paraffin wax	1,301,400	2,528,600	1,444,500
Refined	12,000	179,000	23,000
Scale	97,000	437,300	596,180
Lubricating grease	870,800	631,300	1,192,800

Imports

Imports of crude and refined oils at the principal United States ports for the week ended November 9 totaled 1,420,000 bbls., a daily average of 202,857 bbls., compared with 2,144,000 bbls., a daily average of 306,285 bbls. for the previous week and a daily average of 293,750 bbls. for the four weeks ended November 9. Details follow:

	Bbls. of 42 Gals.
At Atlantic Coast Ports—	
Baltimore	186,000
Boston	69,000
New York	619,000
Philadelphia	262,000
Others	211,000
Total	1,347,000
Daily average	192,428
At Gulf Coast Ports—	
New Orleans & Baton Rouge	38,000
Tampa	35,000
Total	73,000
Daily average	10,429
At all United States Ports—	
Total	1,420,000
Daily average	202,857
Daily average four weeks	293,750

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended November 9 totaled 712,000 bbls., a daily average of 101,714 bbls., compared with 512,000 bbls., a daily average of 73,142 bbls. for the previous week and a daily average of 97,179 bbls. for the four weeks ended November 9. Details follow:

	Bbls. of 42 Gals.
At Atlantic Coast Ports—	
Baltimore	225,000
New York	319,000
Philadelphia	108,000
Others	60,000
Total	712,000
Daily average	101,714
Daily average four weeks	97,179

There were no receipts of California crude or refined oils at Gulf Coast ports during the week.

CONTRACT SHIPMENTS BULK OF BUSINESS

(Continued from Page 149)

Some oil probably from this purchase is being offered at 70 cents over the winter. There have been some quite sizable contracts as things go today, written during the week but there was keen competition and the price made must have been very reasonable. The present time seems to be a good time to make contracts and the only doubtful feature is the possibility of an open winter after January 1 next. The price range is quite narrow, for example, good judges of market price 18-22 fuel oil, zero, and fairly low sulphur at 67½ to 70 cents claiming that under the existing conditions in this market the latter is the high figure for the ordinary grades of fuel oil of this gravity with a zero cold test. Some sales are still being made of the ordinary cold test oils but there is some risk as they may get caught in some cold weather somewhere along the route before reaching destination and even coil cars are slow to be unloaded once they are thoroughly chilled so that most buyers are now particularly insistent on having a zero fuel oil.

Lubs Quiet

Lubricating oils are quiet as to immediate demand. There is some contracting going on for stocks for next spring especially for bright stocks which are also in fairly steady spot demand at full prices. At least one refiner has advanced the prices of some of his grades of bright stocks 1 cent a gallon. There is practically no change in the market. A new line of motor oils has been placed on the market for which special claims are being made that it has a very low pour test, one statement being that it remains liquid at 12 below zero. The specifications of the oil as well as the price at which it will be placed on sale to the public through the stations of its refiner as well as their franchise customers has not been announced at this writing although the price must be made known within a day or two. The oil is stated to be produced through a modified Wells-Scotscomb process.

Executives of the leading distributors in this market state they do not expect there will be any change at a very early date, in the tank wagon scale over the territory. Regarding the local cut the explanation has already been made. There are other important centers where a similar cut might be as much anticipated as in Chicago. The reduction of 1 cent made by the Atlantic Refining Co. is stated to be brought about through large shipments of California gasoline into the eastern territory. The Richfield Oil Co. is securing much additional distribution in the East Coast district and is also gradually working inland from the Coast having one refinery in western Pennsylvania. In this territory, it is stated that the business done by the larger distributors is much larger than a year ago, and that the prices are not unduly high compared with other stable and widely used commodities. The only reason for a price reduction as some of the leaders see it is that price cutting is quite common and is growing as the gallonage of the average station decreases with the weather. This might be corrected by higher tank car prices. The maintenance of crude prices, through restrictions of production by agreement, would make a stable crude market and also it is hinted might cause some refiners to close down owing to the high cost of crude if obtainable at any price that they could afford to pay. In talking over the situation one oil man stated that, even now, crude is hard to buy. There is certainly a possibility the gasoline price to the general public in this territory may not be reduced for some weeks and if not for some weeks many will argue that it need not be reduced at all. Regarding the present market a jobber from this state remarked that "Each day of the present rate is another Christmas for the jobbers." If the smaller dealers are making so much money or might make so much if they would only keep their profits, what must the larger distributors in this territory be making? There is money in the distributing end of the business. One of the heads of Swift & Co., the large packers stated that while their business had been profitable, the profit in it would have been much larger if they had established their own distribution as the Standard Oil Co. had done. He also added that the cost of meat to the public would have been less. This is probably equally true of gasoline prices today. Along the foregoing line of reasoning there is no reason for a reduction in tank wagon prices yet the very thought that it is inevitable may bring it about.

ROCKY MOUNTAIN AREA

(Continued from Page 144)

Production Co.'s No. 1-A State, SW SW, Section 36-34-95, Alkali Butte Dome, is spudding in its third hole, the other two having been lost. The Producers & Refiners' No. 9 C SW SW, Section 15-32-95, Big Sand Draw, about which there have been unconfirmed reports of oil showing in the hole, is shut down for orders at 2,970 feet. It had cored ahead of that depth several feet.

In Carbon County, the Producers & Refiners' No. 2, Mahoney Dome, SE NW, Section 34-26-88, is bottomed at 3,846 feet and has cored from 3,846 to 3,848 feet. This company's No. 1 O'Brien Springs, Section 12-24-88, is being abandoned after drilling to 264 feet. The Midwest Refining Co.'s No. 31 Dutton Creek, SW SE, Section 1-18-78, is bottomed at 2,280 feet and running the 12½-inch at 1,934 feet.

In Sweetwater County, the Mountain Fuel Supply Co.'s No. 1 Sullivan, C SW SW, Section 10-16-104, South Baxter Basin, is drilling at 2,720 feet, and its No. 1 Hay, NE cor., Section 26-17-104, is standing cemented on top of a gas sand at 3,503 feet. The same company's No. 1 Tucker, NW SE, Section 18-13-99, Alkali Creek, is drilling at 3,300 feet, and its No. 2 Humphreys, Section 10-12-101, Canon Creek, is rigged up and shut down.

In Lincoln County, the Midwest Refining Co.'s No. 1 Little Grays River, Section 25-37-117, is bottomed at 1,700 feet and fighting casing trouble. The 10-inch is at 1,675 feet. Reeves Aylmore and others' No. 1 Higgins, NE NW, Section 7-21-119, Sage Creek, is reported showing considerable gas at 1,145 feet.

In Sublette County, Charles S. Hill and others', No. 1, Section 3-26-113, La Barge Dome, is resuming at 900 feet, and the Ogden-La Barge Oil Co.'s No. 1, Section 18-27-113, is shut down for the winter at 5,000 feet.

In Niobrara County, the Ohio Oil Co.'s No. 1 Converse Sheep, Section 32-36-65, Lance Creek, is to be drilled deeper as a test to the Sundance, and possibly the Pennsylvanian, following the loss of the hole in No. 2 on the same section which was being deepened. The Argo Oil Co.'s No. 7 Wehopeso, SW NW, Section 19-38-60, Mule Creek, an old well being deepened to test lower horizons, found water in the Sundance and is drilling in the top of the Embar at 2,650 feet which also is showing water.

MONTANA

Some of the wildcat tests have shut down with the approach of winter and operators in the developed fields are getting water and fuel lines in shape to withstand freezing temperatures.

In the Kevin-Sunburst Field, the Sunburst Oil & Refining Co. completed an 8,000,000-foot gas well in the Sunburst sand at 1,100 feet on Section 16-33-1. The well is noteworthy in that it is the seventeenth consecutive producer completed by the Sunburst company without a dry hole. The No. 3 Munger Kaston on Section 27-35-1, is reported a 20-bbl. well, producing from a stray sand at 1,415 feet. The Medford Oil Co. completed a small well on the Morton lease in Section 28-35-1. Five or six holes were spudded the past week in the Kevin-Sunburst Field.

Failure of the L. B. O'Neil test, 5 miles north of Great Falls, following the disappointing results obtained so far in the U. S. Petroleum well, means little or no more activity for the Great Falls district this fall. The U. S. Petroleum well aroused great hopes last spring when oil was encountered at 1,100 feet, but the hole has been carried over 1,500 feet without finding anything of value.

The Carter Oil Co.'s test on the Six Shooter structure near Rapelje is still drilling and has passed 4,200 feet. The well is in the Ellis sand, which is expected to show a thickness of 300 or 400 feet, with the greatest possibility of production in the lower lenses. This well reported a light gas flow at 1,710 feet, and a much greater one at 3,120 feet. Estimates on the volume of the latter run as high as 10,000,000 feet. The operators show no indication of suspending on account of the season.

Pondera Field

It is reported that the W. E. Rice holdings in the Pondera Field have been purchased by the Bumford interests of Minneapolis at a consideration of $250,000 or more. The transaction includes a daily oil production of approximately 400 bbls. W. E. Rice is one of the pioneer operators in the Pondera and Kevin-Sunburst Fields.

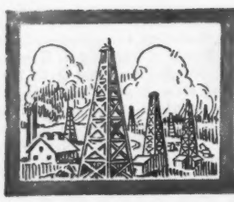
The Monalta Oil Co.'s test just south of the Vanalta well has completed a fishing job and is ready to drill again. This well is on the Montana side of the boundary line and has been shut down at 2,100 feet, only a short distance above the Sunburst sand. D. A. MacDonald is ready to spud on the Farbo lease, Section 2-37-4, offsetting the Vanalta well on the south. There will no doubt be other tests started in this area this winter, due to the success of the Vanalta test.

The Shoshone Consolidated Oil Co.'s test on the Hamilton Coulee structure near Big Timber is drilling below 5,745 feet and is thought to be only about 100 feet above the objective sand. It is showing considerable gas, sufficient to blow water out of the hole at intervals.

Pipe Line Runs

Daily average pipe line runs for week ending November 16:

WYOMING	
Salt Creek	21,250
Frannie	.....
Big Muddy	2,180
Oregon Basin	4,810
Byron	.....
Dutton	40
Elk Basin	620
Ferris	20
Grass Creek	2,240
Greybull	10
Hamilton	1,000
LaBarge	2,260
Lance Creek	150
Lost Soldier	3,080
Osage	540
Poison Spider	900
Rock River	2,290
Rex Lake	100
Lander	710
Simpson Ridge	50
Teapot Dome	30
Mule Creek	480
Pilot Butte	.....
Total	52,760
MONTANA	
Cat Creek	1,260
Kevin-Sunburst	6,880
Pondera	2,430
Lake Basin	40
Total	10,610
COLORADO	
Moffat	1,204
Fort Collins	1,843
Florence	710
Iles	1,140
Tow Creek	437
Boulder	25
Rangely	100
Total	5,459
NEW MEXICO	
Artesia	842
Cap Rock (Maljamar)	415
Hogback	400
Rattlesnake	1,656
Table Mesa	115
Total	3,428
Grand total	72,257



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Nov. 19		Nov. 12		Nov. 5	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.07	.07¼	.07	.07¼	.07	.07¼
56-58 450 endpoint	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
*58-60 437 endpoint (U. S. Motor)	.075		.0748		.0747	
*60-62 437 endpoint	.0763		†.07½	.0775	.0775	
*60-62 400 endpoint	†.07½	.07¾	†.07½	.0775	.0788	
*64-66 375 endpoint	†.07¾	.08	†.07⅞	.0825	.0825	
68-70 360 endpoint	.08	.08¼	.08	.08¼	.08	.08¼
64-66 437 endpoint (blend)	.07¼	.07½	.07¼	.07½	.07¼	.07½

*Weighted average prices November 18, 11 and 4 as reported by representative refiners. Sales to jobbers only. †No sales reported.

NORTH TEXAS—						
56-58 450 endpoint	.06¾	.07	.06¾	.07	.06¾	.07
58-60 460 endpoint	.06¾	.07	.06¾	.07	.06¾	.07
58-60 437 endpoint (U. S. Motor)	.06⅞	.07	.06⅞	.07¼	.06⅞	.07¼
60-62 400 endpoint	.07¼	.07⅜	.07¼	.07⅜	.07¼	.07⅜
64-66 390 endpoint	.07½	.07¾	.07½	.07¾	.07½	.07⅝
64-66 375 endpoint	.07⅝	.08	.07⅞	.08	.07¾	.08
68-70 360 endpoint	.08	.08¼	.08	.08¼	.08	.08¼
64-66 437 endpoint (blend)	.07¼	.07½	.07¼	.07½	.07¼	.07½
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.07⅝		.07⅝		.07⅝	
***ARKKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.07⅝		.07⅝		.07⅝	
PENNSYLVANIA—						
52-54 Naphtha	.07¾	.08	.07¾	.08	.07¾	.08
54-56 Naphtha	.07¾	.08	.07¾	.08	.07¾	.08
58-60 Gasoline	.08	.08¼	.08¼	.08½	.08½	.09
60 Gasoline	.08	.08½	.08¾	.09	.08¾	.09
62 Gasoline	.08¾	.09	.08¾	.09	.08¾	.09
64 Gasoline	.09¼	.09½	.09¼	.09½	.09¼	.09½
68-70 350 endpoint gasoline	.10¼	.10½	.10¼	.10½	.10¼	.10½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.07	.07¼	.07	.07¼	.07	.07¼
56-58 450 endpoint	.06¾	.07¼	.06⅞	.07¼	.07	.07¼
58-60 437 endpoint (U. S. Motor)	.06¾	.07½	.06¾	.07½	.07	.07½
60-62 400 endpoint	.07⅜	.07⅝	.07⅜	.07¾	.07¾	.07¾
64-66 375 endpoint	.07⅞	.08⅛	.07⅞	.08¼	.07⅞	.08⅛
68-70 360 endpoint	.08	.08¼	.08	.08½	.08	.08¼
64-66 437 endpoint (blend)	.07¼		.07	.07¼	.07¼	.07½
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

NATURAL GASOLINE

	Nov. 19		Nov. 12		Nov. 5	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾	.07⅛	.06½	.06⅝	.06⅝	.06¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾		.06½	.06⅝	.06⅝	.06¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼	.06⅜	.06⅜	.06½	.06½	.06⅝
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼	.06⅜	.06⅜	.06½	.06½	.06⅝
Grade C, 80-90, 375 e.p., rec. 78%	.06⅛	.06¼	.06¼	.06⅜	.06½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾	.06⅞	.06½	.06⅝	.06⅝	.06¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾		.06½	.06⅝	.06⅝	.06¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.06¼	.06⅜	.06⅜	.06½	.06½	.06⅝
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼		.06⅜	.06½	.06½	.06⅜
Grade C, 80-90, 375 e.p., rec. 78%	.06⅛	.06¼	.06¼	.06⅜	.06½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07¼		.07	.07¼	.07	.07¼
Grade BB, 84-92, 375 e.p., rec. 85%	.07		.07		.07	
Grade C, 80-90, 375 e.p., rec. 78%	.07		.07		.07	
CALIFORNIA—						
75-78 375-390 endpoint	.07¾	.08¼	.07¾	.08¼	.07¾	.08¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾		.06⅝		.06¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾		.06⅝		.06¾	
Grade B, 76-83.9, 375 e.p., 85%	.06¼		.06½		.06¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼		.06½		.06⅝	
Grade C, 80-90, 375 e.p., rec. 78%	.06¼		.06½		.06⅝	

BURNING OIL

	Nov. 19		Nov. 12		Nov. 5	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.04½	.05	.04⅝	.05	.04¾	.05¼
42-44 water white kerosene	.05	.05¼	.05	.05½	.05¼	.05¾
NORTH TEXAS—						
41-43 water white kerosene	.04¼	.04½	.04½	.04⅝	.04½	.04¾
40-42 water white kerosene	.04	.04½	.04⅛	.04⅜	.04¼	.04⅜
***NORTH LOUISIANA—**						
41-43 water white kerosene	.05½		.05½		.05½	
***ARKANSAS—**						
41-43 water white kerosene	.05½		.05½		.05½	
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.06¾	.07	.06¾	.07
45 Kerosene water white	.06¾	.07	.07	.07¼	.07	.07¼
46 Kerosene water white	.06¾	.07	.07	.07¼	.07	.07¼
47 Kerosene water white	.07	.07¼	.07¼	.07½	.07¼	.07½
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.05	.05½	.05	.05½	.05	.05½
Engine distillate, 43-44, 445 endpoint	.07	.07½	.07	.07½	.07	.07½
Engine distillate, 42-44, 480 endpoint	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.04½	.05	.04½	.05	.04⅝	.05
42-44 water white kerosene	.05	.05¼	.05	.05½	.05	.05¼
GULF COAST (Export)—						
41-43 prime white	.07		.07		.07	
41-43 water white	.08		.08		.08	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Nov. 19		Nov. 12		Nov. 5	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.65	.67½	.65	.67½	.62½	.65
18-22 Fuel Oil, per bbl.	.67½	.72½	.67½	.72½	.65	.70
20-22 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
22-26 Fuel Oil, per bbl.	.75	.80	.75	.80	.75	.80
24-26 Fuel Oil, per bbl.	.80	.90	.80	.90	.80	.85
26-30 Fuel Oil, per bbl.	.90	1.00	.90	1.00	.90	1.00
28-30 Fuel Oil, per bbl. (industrial)	1.15	1.20	1.10	1.20	1.10	1.20
32-36 Gas Oil (industrial)	.02¾	.03	.02¾	.03	.03	.03⅛
32-36 Gas Oil (straw color)	.03	.03⅛	.03⅛	.03¼	.03⅛	.03¼
36-38 Distillate	.03⅝	.03⅞	.03⅝	.03⅞	.03⅝	.03⅞
38-40 Straw Distillate	.03¾	.04¼	.03¾	.04¼	.03¾	.04¼
NORTH TEXAS—						
Below 20 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
24-26 Fuel Oil, per bbl.	.75	.80	.75	.80	.70	.75
32-36 Gas Oil (straw)	.02¾	.03	.02¾	.03	.02⅞	.03⅛
38-40 Straw Distillate	.03¾	.04	.03¾	.04⅛	.03¾	.04⅛
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.80	.90	.80	.90	.80	.90
30-32 Gas Oil	.03½	.03¾	.03½	.03¾	.03½	.03¾
***ARKANSAS—**						
33-36 Distillate	.03⅝	.04	.03⅝	.04	.03⅝	.04
30-32 Gas Oil	.03¼	.03¾	.03¼	.03¾	.03¼	.03¾
16-22 Refinery Fuel Oil, per bbl.	.80	.90	.80	.90	.80	.90
GULF COAST (South Texas)—						
Gas Oil	.04	.04¼	.04	.04¼	.04	.04¼
Bunker C Fuel (cargo lots), per bbl.	.75		.75		.75	
Bunker C Fuel (small lots)	1.00	1.05	1.00	1.05	1.00	1.05
PENNSYLVANIA—						
30-34 Fuel Oil	.04½	.04¾	.04½	.04¾	.04½	.04¾
36-40 Fuel Oil	.04¾	.05	.04¾	.05	.04¾	.05
CALIFORNIA—						
33-36 Distillate	.03½	.04	.03½	.04	.03½	.04
26-32 Distillate	.02	.02½	.02	.02½	.02	.02½
15-20 Fuel Oil, Bunker (at tide water)	.65	.85	.65	.85	.65	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.75	.80	.77½	.85	.77½	.85
18-22 Fuel Oil, per bbl.	.67½	.72½	.70	.75	.70	.75
28-30 Fuel Oil, per bbl.	1.15	1.20	1.15	1.20	1.12½	1.17½
32-36 Gas Oil (zero)	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
32-36 Gas Oil (industrial)	.02¾	.03	.02⅞	.03⅛	.02⅞	.03⅛
36-38 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
38-40 Straw Distillate	.03¾	.04	.03¾	.04	.03¾	.04

*Louisiana, Arkansas, Mississippi and East Texas delivery.

LUBRICATING OIL AND WAX

	Nov. 19		Nov. 12		Nov. 5	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
150 vis., 3 color, 20-25 cold test	.07¾	.08	.07¾	.08	.07¾	.08
150 vis., 4 color, 20-25 cold test	.07½	.07¾	.07½	.07¾	.07½	.07¾
180 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
180 vis., 4 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 5 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
280 vis., 3 color, 25-30 cold test	.15¾	.16	.15¾	.16	.15¾	.16
280 vis., 4 color, 25-30 cold test	.14¾	.15	.14¾	.15	.14¾	.15
280 vis., 5 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
Cylinder Stocks:						
600, steam refined, light green	.10	.12	.10	.12	.10	.12
600, steam refined, dark green	.09	.11	.09	.11	.09	.11
190-200 vis., D color Bright Stock	.41	.42	.41	.42	.41	.42
150-160 vis., D color Bright Stock	.37		.37		.37	
150-160 vis., E color Bright Stock	.32	.35	.32	.35	.32	.35
Waxes:						
124-126 White Crude Scale Wax	.03	.03⅛	.03	.03⅛	.03	
PENNSYLVVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07½	.07¾	.07½	.07¾	.07½	.07¾
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.15½	.16	.15½	.16	.15½	.16
180, 3 color	.21½	.22	.21½	.22	.21½	.22
200, 3 color	.24½	.25	.24½	.25	.24½	.25
220, 3 color	.28½	.29	.28½	.29	.28½	.29
600, steam refined	.26½	.27	.26½	.27	.26½	.27
635, steam refined	.29½	.30	.29½	.30	.29½	.30
650, steam refined	.30½	.31	.30½	.31	.30½	.31
600, Pennsylvania Flash	.31½	.32	.31½	.32	.31½	.32
630, Pennsylvania Flash	.36	.36½	.36	.36½	.36	.36½
600, E filtered	.33	.33½	.33	.33½	.33	.33½
600, D filtered	.36½	.37	.36½	.37	.36½	.37
Pennsylvania Bright Stock	.49	.50	.49	.50	.50	.51
*122-124 White Crude Scale Wax	.03¼	.03½	.03¼	.03½	.03¼	.03½
*124-126 White Crude Scale Wax	.03¼	.03½	.03¼	.03½	.03¼	.03½

*At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.05¾	.06½	.05¾	.06½	.05¾	.06½
No. 3 color, 200 vis., pale oil	.09		.09		.09	
No. 3 color, 300 vis., pale oil	.09¾	.10	.09¾	.10	.09¾	.10
No. 3½ color, 500 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 4 color, 750 vis., pale oil	.12	.13	.12	.13	.12	.13
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½		.08½		.08½	
No. 5 to 6 color, 500 vis., red oil	.09	.10	.09	.10	.09	.10
No. 5 to 6 color, 750 vis., red oil	.11¼	.11½	.11¼	.11½	.11¼	.11½
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12
No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.14¼	.15½	.14¼	.15½	.14¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Nov. 19		Nov. 12		Nov. 5	
Gasoline, U. S. Motor, 58-60, 437	.08¾	.09	.08¾	.09	.08¾	.09
Kerosene, water white, 41-43	.07¾		.07¾		.07¾	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.05¼		.05¼		.05¼	
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.12½		.12½		.11½	
250 red Paraffin Oil	.11½		.11½		.11	
225 red Paraffin Oil	.10		.10		.09½	
200 red Paraffin Oil	.09¼		.09¼		.09	
Refined Wax:						
120-122 a.m.p., per lb.	.04		.04		.04	
125-127 a.m.p., per lb.	.04⅛		.04⅛		.04⅛	
130-132 a.m.p., per lb.	.04⅞		.04⅞		.05⅜	
133-135 a.m.p., per lb.	.05⅞		.05⅞		.06	
135-137 a.m.p., per lb.	.06¼		.06¼		.06¼	
Petrolatum in barrels, carload lots, per pound:						
Dark Green	.01⅞		.01⅞		.01⅞	
Amber	.03½		.03½		.03½	
Extra Amber	.03⅝		.03⅝		.03⅝	
Cream	.06⅜		.06⅜		.06⅜	
Lily White	.07⅜		.07⅜		.07⅜	
Snow White	.08⅜		.08⅜		.08⅜	

*Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Nov. 19	Nov. 12	Nov. 5
Kerosene, prime white	.07¾	.07¾	.07¾
Kerosene, water white	.09	.09	.09
600, steam refined cylinder stocks, in bbls.	.33	.33	.30½
635, steam refined	.35	.35	.32½
650, steam refined	.39	.39	.36½
600, Pennsylvania Flash	.43	.43	.43
630, Pennsylvania Flash	.47	.47	.47
600, Warren E	.40½	.40½	.41
600, Oil City, E	.39½	.39½	.40
Light 140-150 Bright Stocks	.59 .60	.59 .60	.59 .60
Dark 140-150 Bright Stocks	.57 .58	.57 .58	.57 .58

LOS ANGELES EXPORT PRICES

	Nov. 19		Nov. 12		Nov. 5	
Kerosene, water white	.04½	.05	.04½	.05	.04½	.05
U. S. Motor Gasoline, 53-55, 437 e.p.	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)* ..... $ .80
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* ..... Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler, Mitchell and Glasscock—See gravity table
Chalk† ..... $ .65

*Includes Howard County and Westbrook Fields.
†Posted by Humble Oil & Refinery Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (May 20, 1929) ..... $ .85
Smackover, 24 gravity and above (May 20, 1929) 1.00
Cotton Valley, below 36 gravity (May 22) ..... .85
Bellevue (May 29, 1929) 1.30
Urania (May 21, 1929) 1.01
East El Dorado (May 22, 1929) ..... .85
Other fields ..... See gravity table

Cotton Valley crude about 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

Grade A (May 20)* $1.30
Grade B ..... See gravity table
Jennings, La. (March 14)† 1.05
Saratoga, Batson, Dayton (March 14, 1927)‡ 1.20
Refugio¶ ..... .70
Markham (March 14)§ 1.00
High Island (December 14)¶ 1.00

*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company. ¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective May 21, 1929)

Rock Creek, Wyo. $1.40
Salt Creek ..... See gravity table
Big Muddy $1.43
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light 1.65
Mule Creek 1.20
Elk Basin 1.65
Lance Creek 1.68
Poison Spider (March 14, 1927) 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10
Osage 1.65
Lost Soldier (contract, May 22) 1.05
Hamilton Dome (March 14, 1927) ..... .85
Pedro 1.25
Greybull 1.65
Four Bear ..... .85
Cat Creek (Montana) (July 27, 1928) .. 1.48
Sunburst (Montana) (May 23, 1929) ... 1.75
Torchlight 1.65
Hogback (New Mexico) 1.70

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (May 2)* ..... $ .90
Mirando (May 20, 1929)† ..... .90
Salt Flat (May 20, 1929)§ 1.25
Rockdale Minerva (April 15) 1.27
Below 28 gravity 1.25
38-38.9 gravity 1.27

(Continued on Page 156)

CRUDE OIL GRAVITY TABLE

Gravity	1 Okla., Kans. N. E. Texas	2 No. La. and Arkansas	3 Crane, Upton, Crockett, Winkler, Howard, Pecos, and Lea, N. Mex.	4 Stephens, Ark.	5 Wheeler (Texas Panhandle)	6 Gray County (Texas Panhandle)	7 Carson and Hutchinson (Texas Panhandle)	8 Salt Creek, Wyo.	9 Grade B and Light Crude (G. Coast)	10 Somerset (South Central Texas)
24 and above	....	....	....	....	....	....	....	....	....	....
Below 24	....	....	....	....	....	....	....	....	....	....
Below 25	.85	....	.70	....	....	....	....	....	1.15	....
25 to 25.9	.90	....	.74	....	....	....	....	....	1.18	....
26 to 26.9	.95	....	.78	....	....	....	....	....	1.21	....
27 to 27.9	1.00	....	.82	....	....	....	....	....	1.24	....
Below 28	....	1.00	....	.90	.90	.90	.90	....	....	....
28 to 28.9	1.05	1.05	.86	.94	.90	.90	.90	....	1.27	....
29 to 29.9	1.10	1.10	.90	.98	.90	.95	.90	1.10	1.30	....
30 to 30.9	1.15	1.15	.94	1.02	.95	1.00	.90	1.15	1.33	....
31 to 31.9	1.20	1.20	.98	1.06	1.00	1.05	.90	1.20	1.36	....
32 to 32.9	1.25	1.25	1.02	1.10	1.05	1.10	.95	1.25	1.39	1.05
33 to 33.9	1.30	1.30	1.06	....	1.10	1.15	1.00	1.30	1.42	1.07
34 to 34.9	1.35	1.35	1.10	....	1.15	1.20	1.05	1.35	1.45	1.09
35 to 35.9	1.40	1.40	1.14	....	1.20	1.25	1.10	1.40	1.48	1.11
36 to 36.9	1.45	1.45	1.18	....	1.25	1.30	1.15	1.45	....	1.13
37 to 37.9	1.50	1.50	....	....	1.30	1.35	1.20	1.50	....	1.15
38 to 38.9	1.55	1.55	....	....	1.35	1.40	1.25	....	....	1.17
39 to 39.9	1.60	1.60	....	....	1.40	1.45	1.30	....	....	....
40 to 40.9	1.65	1.65	....	....	1.45	1.50	1.35	....	....	....
41 to 41.9	1.70	1.70	....	....	1.50	1.55	1.40	....	....	....
42 to 42.9	1.75	1.75	....	....	1.55	1.60	1.45	....	....	....
43 to 43.9	1.80	1.80	....	....	1.60	1.65	1.50	....	....	....
44 and above	1.85	1.85	....	....	1.65	1.70	1.55	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule May 20, 1929, making price below 26 gravity 70 cents per barrel, 26-26.9 gravity 85 cents, 27-27.9 gravity 85 cents, 28-28.9 gravity 90 cents, 29-29.9 gravity 95 cents, 30-30.9 gravity $1.05, and 31-31.9 gravity $1.15, with balance of the price schedule as shown [illegible].

Oklahoma—Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, May 20.

North Central Texas—Including Ranger, Texhoma, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona and Moran, Prairie Oil & Gas Co., Sinclair Oil Refining Co., Humble Oil & Refining Co., The Texas Company and Gulf Refining Co., May 20.

Kansas—Prairie, Sinclair, The Texas Company and Carter, May 20.

Column 2—Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer and El Dorado only) May 22. Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., Magnolia Petroleum Co., schedule applies to Pine Island, Haynesville, Bull Bayou, Louisiana and El Dorado, Ark., light crude.

Column 3—Humble Oil & Refining Co. and Magnolia Petroleum Co., May 20.

Column 4—Atlantic Oil Producing Co., Prairie Oil & Gas Co., Louisiana Oil Refining Corp., May 21, 1929.

Columns 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., May 20, 1929.

Column 8—Midwest Refining Co., May 20, 1929. All crude over 37 gravity $1.50 per barrel.

Column 9—Humble Oil & Refining Co., May 20, 1929 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective October 21, 1929)

Gravity—	1 Salt Lake, Newport, Summerland, Lawndale, Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Huntington Beach, Signal Hill (Nov. 6) Athens, Inglewood, Rosecrans-Dominguez, Watsonville	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Fairridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs (Nov. 8)	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt, Ventura, Rincon	Ventura Ave.* Potrero†	9 Elwood Terrace	10 Seal Beach (Nov. 4)
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.40	....	.70
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.40	....	.70
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.40	....	.70
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.40	....	.70
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.40	....	.75
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.40	....	.80
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.40	....	.85
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.40	....	.89
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.40	....	.93
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.40	....	.97
24 to 24.9	1.01	.97	.90	.58	.98	.88	.88	.94	.40	....	1.01
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.98	.60	....	1.05
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	1.02	.60	....	1.09
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	.60	....	1.13
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	.60	....	1.17
29 to 29.9	1 21	1.16	1.16	1.13	1.15	1.06	....	....	.60	....	1.21
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	.60	....	1.25
31 to 31.9	1.30	....	1 28	....	1.25	1.14	....	....	.60	....	1.30
32 to 32.9	1.35	....	1 34	....	1.30	1.18	....	....	.60	....	1.35
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	.60	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1 26	....	....	.60	1.16	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	.60	1.22	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	.60	1.28	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	.60	1 34	....
38 to 38.9	1.71	....	.95	....	1.60	....	....	....	.60	1.40	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	.60	1.46	....
40 to 40.9	1.83	....	....	....	....	....	....	....	.60	1.52	....
41 to 41.9	1.89	....	....	....	....	....	....	....	.60	1 58	....
42 to 42.9	1.95	....	....	....	....	....	....	....	.60	1.64	....

*October 22.
†Sunset Pacific Oil Co., October 26.

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1929. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Mills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity; Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

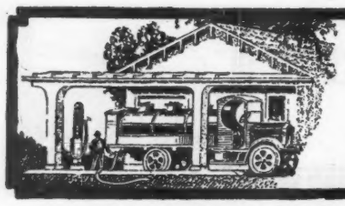
Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 13.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9—Posted by Union Oil Co. only.

Kettleman Hills, 55 gravity and above, $1.65 (posted by Standard Oil Co. of California).



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Nov. 19

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago†	17.0	18.0	3.0	13.0
Decatur, Ill.	19.2	20.2	3.0	13.1
E. St. Louis	15 4	15.4	3.0	12.2
Joliet	19.4	20.4	3.0	13.2
Peoria	19.2	20.2	3.0	13.1
Quincy	19.2	20.2	3.0	12.9
Davenport, Ia.	19.5	20.5	3.0	13.3
Des Moines	19.5	20.5	3.0	13.3
Keokuk	19.5	20.5	3.0	13.3
Sioux City	19.1	20.1	3.0	12.9
Duluth, Minn.	20.5	21.5	3.0	13.9
Mankato	20.1	21.1	3.0	13.7
Minneapolis	20.2	21.2	3.0	13.9
LaCrosse, Wis.	19.2	20.2	3.0	14.0
Milwaukee	18.1	19.1	3.0	12.9
Madison	18.3	17.3	3.0	13.1
Detroit, Mich.	19.8	20.8	3.0	14.7
Grand Rapids	19.7	20.7	3.0	14.6
Saginaw	19.9	20.9	3.0	14.8
Evansville, Ind.	20.0	21.0	4.0	14.0
Fort Wayne	20.4	21.4	4.0	14.4
Indianapolis	20.2	21.2	4.0	14.2
South Bend	20.4	21.4	4.0	14.4
Fargo, N. D.	21.9	22.9	3.0	15.9
Huron, S. D.	21.3	22.3	4.0	14.7
Sioux Falls	20.1	21.1	4.0	14.4
K. C., Mo.*	18.9	19.9	3.0	11.6
Springfield*	18.8	19.8	3.0	12.5
St. Louis*	17.8	18.9	2.5	12.3
St. Joseph	18.5	19.5	2.0	12.2
Wichita, Kans.	17.8	18.8	3.0	11.8
Bartlesville, Ok.	18.5	19.5	4.0	11.5

*State tax 2 cents; remainder city taxes.

†Effective February 20, discounts in Greater Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	15.7	12.9
V. M. & P. Naphtha	17.2	13.9
Cleaner's naphtha	17.0	14.9
Stanisol	17.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	17.0	21.0	4.0	13.0
Fort Worth	17.0	20.0	4.0	12.0
Houston	13.0	17.0	4.0	11.0
San Antonio	15 0	19 0	4.0	11.0
El Paso	15.0	18.0	4.0	16.0
Texarkana	17.0	19.0	4.0	12.0
Muskogee, Ok.*	16.0	19.0	4.0	13.0
Okla. City*	17.0	20.0	4.0	10.0
Tulsa*	15.0	19.0	4.0	10.0
Ft. Smith, Ark.	15.0	17.0	5.0	12.0
Little Rock	19.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	18.0	21.0	4.0	15.5
Pueblo	18.0	21.0	4.0	15.5
Grand Junction	22.5	25.5	4.0	19.0
Casper, Wyo.	20 0	23 0	4 0	14 0
Cheyenne	21.0	24 0	4 0	15 5
Butte, Mont.	25.5	28.5	5.0	20.0
Helena	25.5	28.5	5.0	20.0
Salt Lake, Utah	21.0	24.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.0	17.0
Boise, Idaho	23.5	26 5	4.0	19.0
Twin Falls	23.5	27.5	4.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	15 0	*21.0	...	13 0
Philadelphia	15.0	*21 0	...	13.0
Scranton	15 0	*21 0	...	13 0
Allentown	15.0	*21 0	...	13.0
Altoona	15 0	*21 0	...	13 0
Erie	15 0	*19.0	...	13.0
Dover, Del.	18.0	20 0	3 0	13.0
Wilmington	18 0	20 0	3 0	13.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	18.0	20.0	2.0	13.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven	18.0	20.0	2.0	15.0

*Includes tax of 4.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	18.0	20.0	2.0	15.0
New York*	16.0	18.0	2.0	15.0
Buffalo	18.0	20.0	2.0	14.0
Rochester	18.0	20.0	2.0	14.0
Syracuse	18.0	20.0	2.0	15.0
Boston, Mass.	18.0	20.0	2.0	15.0
Augusta, Me.	20.0	22.0	4.0	15.0
Manch't'r, N. H.	20.0	22.0	4.0	15.0
Burlington, Vt.	19.0	20.0	4.0	15.0

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	20.0	22.0	4.0	16.5
Augusta	20.0	22.0	4.0	15.5
Macon	23.0	25.0	4.0	16.5
Savannah	22.0	24.0	4.0	15.5
Birm'ham, Ala.	19.0	21.0	4.0	13.0
Mobile	18 0	20 0	4 0	15.0
Montgomery	21.0	23.0	4.0	16.5
Clarks'le, Miss.	18.0	20.0	5.0	12.5
Jackson	21.0	23.0	5.0	13.0
Natchez	20.5	20.5	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla.	22.0	24.0	6.0	14.5
Miami	23.0	25.0	6.0	15.5
Pensacola	18.0	20.0	6.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky.	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	21 0	23.0	5 0	13 0
Ashland	18.0	19.0	5.0	15.5
Catlettsburg	18.0	19.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	20.0	24.0	3.0	15.5
Los Angeles	19.5	23.5	3.0	15.5
Reno, Nev.	24.0	26.0	4.0	19.0
Portland, Ore.	20.5	24.5	3.0	16.5
Seattle, Wash.	20.5	23.5	3.0	16.5
Tacoma	20.5	23.5	3.0	16.5
Spokane	24.5	27.5	3.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	20.25	22.25	4.0	13.25
McCook	21.75	23.75	4.0	14.75
Norfolk	20.75	22.75	4.0	13.75
N. Platte	21.75	23.75	4.0	14.50
Scottsbluff	21.75	23.75	4.0	14.25

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	16.0	18.0	2.0	13.0
Newark, N. J.	17.0	19.0	2.0	13.0
Annapolis, Md.	20.0	22.0	4.0	13.0
Baltimore	19.0	21.0	4.0	12 0
Cumberland	20.0	22.0	4.0	13.0
Washington	17.0	19.0	2.0	12.0
Danville, Va.	21.0	23.0	5.0	13.0
Norfolk	20.0	22.0	5.0	13.0
Petersburg	21.0	23.0	5.0	13.0
Roanoke	21 0	23 0	5.0	13.0
Richmond	20.0	22.0	5.0	13.0
Charles'n, W.Va.	19.0	21.0	4.0	13.0
Keyser	20.0	22.0	4.0	13.0
Parkersburg	19.0	21.0	4.0	12.0
Wheeling	20.0	22.0	4.0	13.0
Charlotte, N. C.	19 0	21.0	5 0	13.0
Hickory	21.0	23.0	5.0	13.0
Mt. Airy	21.0	23.0	5.0	13.0
Salisbury	19.0	21.0	5.0	13.0
Charleston, S.C.	21.0	23.0	6.0	13.0
Columbia	22.0	24.0	6.0	13.0

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points*	19.0	20.0	4.0	†13.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 15 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	15.0	15.0	5.0	13.0
Baton Rouge	20.0	20.9	4.0	14.5
Alexandria	19.0	21.0	5.0	16.0
Lafayette†	20.0	22.0	5.0	14.0
Lake Charles†	20.5	22.5	5.0	16.0
Shreveport	19.5	21.5	4.0	15.0
Knoxv'le, Tenn.	20.0	22.0	5.0	16.0
Memphis	20.0	22.0	5.0	12.5
Chattanooga	20.0	20.0	5.0	14.0
Nashville	19.0	19.9	5.0	16.0
Bristol	21.0	22.0	5.0	14.0
Lt. Rock, Ark.	19.0	21.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana Kerosene prices include 1-cent state tax and 1-cent parish tax.

†Includes 1-cent parish tax.

TANK WAGON CHANGES

November 7—Standard Oil Co. of New Jersey reduced the gasoline tank wagon and station prices in Charlotte, N. C., to 19 cents and 21 cents.

November 9—Standard Oil Co. of Kentucky reduced the kerosene price in Louisville, Ky., to 13 cents.

Standard Oil Co. of New Jersey advanced the gasoline tank wagon and station prices in Roanoke, Va., to 21 cents and 23 cents.

November 15—Atlantic Refining Co. reduced the gasoline tank wagon and station prices 1 cent in Pennsylvania and Delaware.

November 11—Standard Oil Co. of Kentucky reduced the gasoline tank wagon and station prices 2 cents in Mobile, Ala., to 18 and 20 cents.

RICHFIELD ACQUIRES TWO TERMINALS AT NEW YORK

The Richfield Oil Corp. of New York has acquired storage facilities totaling 22,000,000 gallons in the New York district according to an announcement of the past week. Two distinct plants were taken over, one with 21,000,000 gallons of steel tankage and complete waterfront facilities at Bayonne, N. J., to which Richfield will ship in its own tankers from Los Angeles, Calif., all gasoline needs for that territory, as well as all other classes of refined petroleum products, excepting 100 per cent Pennsylvania lubricating oils. These will come from the Tiona refinery, Clarendon, Pa., controlled by Richfield. The Bayonne terminal was formerly the property of the Petroleum Terminal Corp.

The other terminal to be taken over is the distributing plant of the Municipal Service Real Estate Co., Inc., on Newton Creek, Brooklyn, N. Y. One million gallons of storage is here available and this plant will be used as a tank wagon distributing bulk station for Richfield for Brooklyn and Long Island.

The corporation is also completing the construction of a tidewater bulk terminal on Curtiss Bay, Baltimore, Md. This terminal, being built on a 40-acre tract purchased from the Stallings estate with tidewater rights from the Baltimore & Ohio Railroad, will, upon completion, have storage for 500,000 bbls. of refined petroleum products which will be shipped from Richfield refineries at Los Angeles, Calif., and Clarendon, Pa. Immediate work is being concentrated on two 130,000-bbl. steel gasoline storage tanks and three 20,000-bbl. and two 10,000-bbl. tanks for lubricating oils and other refined products, together with necessary wharfage and railroad spur tracks. The terminal will be in partial operation by January 1, 1930.

EXPLOSION AT WHITING PLANT

CHICAGO, Nov. 16.—One man lost his life and five others were badly burned by an explosion which occurred in the Whiting, Ind., refinery of the Standard Oil Co. of Indiana on Tuesday afternoon of this week. The men were working on a scaffolding in the interior of the still when the fire occurred.

CRUDE OIL PRICES

(Continued from Page 155)

39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	...
Callahan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective October 1, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$3.05
Bradford District Oil in National Transit Lines (Pennsylvania)	3.05
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.05
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	3.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.70
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (May 22, 1929)	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines (May 22, 1929)	1.90
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Nov. 12, 1929)	1.55
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective May 21, 1929)

Lima	$1.80
Wooster	1.90
Illinois	1.75
Indiana	1.57
Princeton	1.75
Plymouth	1.28
Waterloo (November 17, 1926)	1.35
Western Kentucky	1.68
Dundee, Mich. (Sept. 17, 1929)‖	Same as Mid-Continent gravity scale
Upper and Lower Traverse sands, Mich‖	Same as Mid-Continent gravity scale
Midland, Mich. (June 3, 1929)*	$1.70
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (Oct. 7, 1929)§	1.70
Oil Springs (Canada)¶	2.27
Petrolia (Canada)¶	2.20

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
‖Posted by Standard of Indiana for boat shipment.

MEXICAN CRUDE

Panuco*	$ .64

*Based on October transactions for deliveries during October and December. Price exclusive of taxes.

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MOTOR OIL

New Investment Interest in Oil Issues

Decline in Market and Outlook for Petroleum Industry Attracting Attention. Broader Distribution of Securities

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Nov. 18.—The decline in oil securities prices during the past few weeks has not been without its favorable reaction. Investment interest in the stocks of the leading oil companies has greatly widened, and it is probable that the market recovery, when completed, will witness a much broader distribution of oil securities than in previous years. Many speculative operators have been eliminated from the picture entirely, and their former holdings well distributed among investment buyers.

There are growing indications of a revival in market sentiment favorable to the oils, and it is by no means beyond the realm of probability that the next big movement in securities prices will be witnessed in the petroleum group. While the present is no time for pool operations, leading interests here evidently look for an early betterment in sentiment, and a number of pool operations on petroleum securities are reported in progress of organization.

Many common stocks of industrial, motor and other groups of companies have long been selling out of line with their demonstrated earning power. Notwithstanding the drastic price declines which have been witnessed, a number of these former favorites in the industrials group are still selling out of line with their dividend payments. This is not so much true of oil company stocks. On the contrary, entirely aside from the extremely favorable outlook for the oil industry in general, a number of oil securities are selling at prices much less than those justified by their present dividend returns.

Financial interests virtually since the first of the year have been stressing the fact that all of the recent unfavorable developments in the petroleum industry had been thoroughly discounted, and that with a better outlook, the future of the petroleum stocks was very bright. Although the oils, as a group, had already been pounded down to the point where they were most attractive from the investment, as well as the speculative standpoint, they were unable to escape the general crash which enveloped the market a fortnight or so ago. The result is that they are now, in many instances, selling at low levels, and this situation is expected to be corrected in the very near future, as the market recovers.

While considerable uncertainty still exists, sentiment in financial circles is much more cheerful, particularly with respect to the oils. Although forced sales are believed to be pretty much a thing of the past, it is believed there is a considerable volume of stock bought at the lows which will find its way to the market on any substantial advance, and that a series of minor setbacks incidental to profit taking may be looked for.

One favorable development, the importance of which cannot be overlooked, is the more friendly feeling exhibited toward the stock market on the part of the Federal Reserve authorities. The Reserve Board since the market crash has been doing a great deal to ease the money situation and enable member banks to pay off loans and find credit with which to carry their customers through the present difficult times.

The Government's decision to reduce taxes has also come as welcome news to the financial community. Reduction in the corporation tax from 12 to 11 per cent is expected to make for better business conditions.

The drastic declines in oil securities prices are expected to have an important effect upon several consolidations which have been rumored at various times since the first of the year. The Vacuum-Standard of New York merger, reported imminent a few weeks ago, involved an exchange of stock on the basis of three shares of Standard of New York for one of Vacuum. This balance has been disturbed a little, with Standard of New York currently selling around 33 and Vacuum at about 90. The stocks of these two companies are expected shortly to regain their normal price relationship, however. A number of other reported planned consolidations are more drastically affected by the drop in stock prices, and it is expected that some of these mergers will have to be entirely revised, as to terms, before any consolidations are consummated.

Market operators who look for a strong upward movement in prices for oil stocks base their expectations on the definite improvement which has developed in the crude oil branch of the market through the belated success of conservation programs, as well as on the better conditions in marketing operations, resulting in better and more stable earnings, due to the acceptance of the code of ethics by prac-

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1929 High	1929 Low	Week ended Nov. 16 Sales	Week ended Nov. 16 High	Week ended Nov. 16 Low	Week ended Nov. 16 Close	Stocks	Outstanding capital	Par value	Div. rate	Last paid	1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low
42⅝	17½	20,600	21⅞	18	21¼	Amerada Corp.	(sh) 922,075	N.P.	50cQ	7-31-29	32⅞	24¼	37⅝	27⅝	43⅞	27⅛
64¾	15	9,500	20½	12½	20⅜	American Republics Corp.	(sh) 209,180	N.P.	.....	3-20-29	74	39⅞	82⅛	35½	85	51⅛
47¼	40½	No sales.				Associated Oil	$57,260,300	$25	50cQ	9-30-29	60	44¾	50¼	35	53⅜	37½
77⅞	35	145,800	42⅞	35¼	40⅝	Atlantic Refining	$50,000,000	$25	25cQ*	9-16-29	128⅜	97	131⅜	104	66⅜	50
49⅛	20	68,300	25½	21⅞	24	Barnsdall Corp.	$45,235,650	$25	50cQ	8- 6-29	33½	23½	35½	20¾	53	20
47⅛	23	141,400	25	18	22⅞	Continental Oil of Delaware	(sh) 4,741,554	N.P.	.....	3-31-27	..	..	..	..	..	..
94¾	47	33,000	50¾	42¼	49⅛	General Asphalt	$20,785,400	$100	.....	.....	94½	50	96¾	65	94⅞	68
109	23	15,800	46¾	35	44	Houston Oil	$25,000,000	$100	.....	.....	72	50¼	175¾	60⅛	167	79
39⅜	17¾	38,400	24½	21	23⅛	Independent Oil & Gas	(sh) 1,333,572	N.P.	50cQ	7-31-29	34	19⅝	32¾	17⅝	38⅜	21¾
53	13⅛	59,500	22¼	16	21	Indian Refining	$12,307,370	$10	.....	5-31-24	12¾	7½	12⅛	7⅝	39⅝	9
38¾	24	14,100	22⅞	16½	22⅞	Lago Oil & Transport	(sh) 3,992,122	N.P.	.....	5- 1-27	25⅞	16½	37¾	20½	39⅛	27¾
18	7	35,100	8¾	7⅝	8⅛	Louisiana Oil Refining	(sh) 1,190,063	N.P.	.....	.....	19⅞	12	18⅛	10	19¾	9⅜
18½	11¼	No sales.				Maracaibo Oil	(sh) 330,000	N.P.	.....	.....	28	16½	22¾	12	25½	12½
69⅜	9¼	53,400	16¼	12	14¾	Mexican Seaboard	(sh) 1,276,873	N.P.	.....	12-15-20	13¾	6	9¼	3	73	4⅝
39⅞	23½	74,600	27½	22⅛	27½	Mid-Continent Petroleum	(sh) 1,857,912	N.P.	50cQ	8-15-29	37	20½	39⅜	25½	44½	25⅛
69	40½	11,200	1¼	¾	1¼	Middle States Oil	$24,298,850	$10	.....	7- 1-23	2½	½	3¾	1⅝	7⅜	2⅜
69¼	10½	15,600	60¾	55	60½	Pan American P. & T.	$50,084,700	$50	.....	10-20-27	76½	56⅛	65⅞	40⅛	54⅞	38¼
18½	13⅝	138,700	61	55	60⅜	Pan American P. & T. "B"	$121,105,050	$50	.....	11-15-24	78⅜	56⅞	66⅜	40¼	58⅞	37¾
..	..	No sales.				Pan American Western "B"	(sh) 400,000	N.P.	.....	1-30-27	46	30	37⅞	16¾	28¾	15½
15¼	5	7,800	5½	3⅜	4¼	Panhandle P. & R.	(sh) 199,370	N.P.	.....	.....	32	4½	18⅞	8	21¾	11½
76	47½	400	52	52	52	Panhandle P. & R. pfd.	$2,564,400	$100	37½cQ	7- 2-23	99⅜	51	83	54	108	70
47	27	61,700	32	24¼	31	Phillips Petroleum	(sh) 2,406,796	N.P.	37½cQ	10- 2-29	57⅜	40	60¼	36¼	53⅞	35¼
3⅜	1	15,400	1¼	1	1⅛	Pierce Oil Corp.	$29,622,831	$25	.....	.....	..	..	1⅛	½	5¼	½
5⅞	½	11,200	3	2½	2½	Pierce Petroleum	(sh) 2,500,000	N.P.	.....	.....	7	2¼	5½	2½	7	3½
65⅝	40½	16,500	49	45	46¾	Prairie Oil & Gas	$61,720,125	$25	50cQ*	9-30-29	60¼	48	55½	45⅝	68	46
65	45	24,900	57⅞	53¼	55⅞	Prairie Pipe Line	$101,250,000	$25	75cQ†	9-30-29	137½	122½	190	130¾	280	172
25⅞	4	7,700	7½	6	6½	Producers & Refiners	$37,438,950	$50	.....	9-15-23	20¾	11	33⅞	16¾	29⅞	16
46¾	30	19,000	29¾	25½	29¾	Producers & Refiners pfd.	$2,845,350	$50	37½Q	5- 1-25	41¾	30¾	50	36⅞	49⅝	41
30¾	20½	70,200	23½	20	23⅛	Pure Oil	$75,959,250	$25	37½Q	9- 2-29	31	25¼	33½	25	31⅝	19
49⅝	20	34,600	30	26½	29½	Richfield Oil	$47,964,650	$25	50cQ	8-15-29	27½	22	28⅝	25⅜	56	23
64	43¼	90,500	53⅞	49	53⅞	Royal Dutch, N. Y.	(sh) 611,303	$13.40	.....	8-13-29	57⅜	47⅜	54½	44¼	64	44⅝
55¾	43⅜	No sales.				Shell Transport & Trad.	£19,654,274	£1	$1.45	7-23-29	48⅝	40½	47⅞	41⅜	57½	40⅝
31¾	19	75,700	24	20⅝	24	Shell Union Oil	(sh) 13,000,000	N.P.	35cQ	9-30-29	31	24	31¾	24⅝	39¼	23¼
40¼	18¼	37,100	22¼	15	20	Simms Petroleum	$8,060,380	$10	40cQ	9-14-29	25⅝	15⅛	25⅜	14¼	27¼	18⅛
45	22¼	306,600	28	21	25	Sinclair Consolidated	(sh) 5,500,000	N.P.	50cQ*	10-15-29	24⅞	15¾	22⅜	15	46¾	17⅜
111	103	9,000	106	105	105	Sinclair Consolidated pfd.	$16,025,250	$100	$2Q	8-15-29	99½	90	104½	97	110	102½
46½	28	29,400	32½	30	31¾	Skelly Oil	$27,237,750	$25	50cQ	9-16-29	37⅛	26⅝	37⅜	24⅛	42⅝	25
81⅞	51½	83,500	65¼	56	62⅛	Standard Oil of Cal.	(sh) 12,594,098	N.P.	62½cQ	9-16-29	63⅝	51½	60¾	50⅜	80	53
83	48	447,400	62¾	50	60¾	Standard Oil of N. J.	$620,079,800	$25	25cQ*	9-16-29	46⅜	37½	41⅜	35⅛	59⅜	37¾
48⅛	32	128,700	35¾	31¾	35⅛	Standard Oil of N. Y.	$434,094,575	$25	40cQ	9-16-29	47¼	30⅜	34⅛	29¾	44¼	28¾
84¾	57	9,200	65	55½	62¾	Sun Oil	(sh) 1,297,627	N.P.	25cQ	9-16-29	41¾	30⅛	34⅞	30	77	31½
24	7⅝	29,700	8½	5¼	8¼	Superior Oil Corp.	(sh) 2,324,938	N.P.	.....	12-20-20	..	..	..	..	..	..
71⅞	50½	134,800	54¾	50	52⅞	The Texas Corporation	$211,076,650	$25	75cQ	10- 1-29	58	48	58	45	74¾	50
23⅞	9¾	35,900	11¼	9½	10¼	Texas Pacific Coal & Oil Co.	$8,380,340	$10	5A‡	1- 3-28	19½	12	18⅞	12	26⅝	12⅛
40	27⅛	2,700	17½	14	17½	Tide Water Oil	(sh) 2,191,759	N.P.	20cQ	9-30-29	39¼	27	29⅛	19	41½	19⅝
97½	88¾	900	88	85⅛	87	Tide Water Oil 5% pfd	$20,705,200	$100	$1.25Q	8-15-29	103	87¼	90¼	85	100⅛	86
23½	12	2,200	16½	14⅛	14½	Tide Water Associated	(sh) 4,796,158	N.P.	.....	8- 1-27	27	20⅞	19⅛	15¾	25	14¾
15¼	5⅛	211,400	7⅞	6⅛	7⅝	Transcontinental Oil	(sh) 3,742,029	N.P.	.....	.....	5½	3	10⅜	3¾	14¾	7¼
57	43¼	32,700	47⅞	42⅛	45	Union Oil of California	$94,798,100	$25	50cQ	8-10-29	58⅜	37¼	56½	39⅝	58	42⅜
163¾	121⅞	2,500	140	130	130	Union Tank Car	$31,061,200	$100	$1.25Q	9- 3-29	120⅜	84¼	127½	94	128⅛	110
42⅞	15	21,400	21¾	17	21	Warner-Quinlan	(sh) 356,000	N.P.	50cQ	10- 1-29	30⅛	23½	34½	24½	44⅞	26
38	25	8,300	27¾	25	26½	White Eagle Oil & Refining	(sh) 490,000	N.P.	50cQ	10-21-29	29¾	25⅛	27½	20	38	20⅛
29¾	13½	5,700	15⅛	12⅞	12⅞	Wilcox Oil & Gas	(sh) 2,400,000	N.P.	.....	5-10-28	..	..	..	..	..	.

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock.

tically all of the principal American oil companies.

Lion Oil Refining

For the 10 months ended on October 31 the Lion Oil Refining Co. reports a net profit of $1,159,291 after all charges but before federal taxes, against $186,266 in the corresponding period last year, an increase of 522 per cent.

Columbia Gas

Columbia Gas & Electric Corp. executive committee announces for the benefit of its shareholders that the corporation will not require payment for the second installment when due November 15, 1929, on subscriptions for additional shares of its common stock.

Holders of outstanding subscription receipts are herewith given the option of paying the second installment when due or deferring it in their discretion not later than February 15, 1930, and including with such second installment payment when made 6 per cent interest thereon from November 15, 1929, to date of payment.

Houston Oil

Report of Houston Oil Co. of Texas and Houston Pipe Line Co. for quarter ended September 30, 1929, shows consolidated net profit of $472,207 after interest, depreciation, depletion, abandoned leases, federal taxes, etc., equivalent after allowing for dividend requirements on $8,947,600 six per cent preferred stock to $1.35 a share on 249,686 shares of common stock. This compares with $434,274 or $1.20 a common share in preceding quarter and $372,583, or 95 cents a common share in third quarter of 1928.

Net profit for nine months ended September 30, totaled $1,251,630 after above deductions, equal after preferred dividend requirements to $3.40 a share on common, comparing with $1,099,426, or $2.79 a share on common in first nine months of previous year.

Houston Oil Co. of Texas, excluding Houston Pipe Line Co., reports for quarter ended September 30, 1929, net profit of $39,133 after charges and taxes, compared with net loss of $11,083 in September quarter of 1928. For nine months ended September 30, 1929, net profit totaled $61,863 after above charges against a net loss of $15,791 in first nine months of 1928.

Houston Pipe Line Co. reports for quarter ended September 30, 1929, net profit of $433,073 after charges and taxes, comparing with $383,666 in September quarter of 1928. For nine months ended September 30, 1929, net profit totaled $1,189,764 after above charges against $1,115,218 in first nine months of 1928.

Shell Union

Shell Union Oil Corp. declared the regular quarterly dividends of 35 cents, payable December 31 to stock of record December 5, and $1.37½ on 5½ per cent

(Continued on Page 162)

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Members of New York Curb Market, Kennedy Building, Tulsa, Okla.

1929 High	1929 Low	Week ended Nov. 15 Sales	High	Low	Close	Stocks—	Outstanding capital	Par value	Div. rate	Last paid	1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low
72	1/16	1,900	¼	⅛	¼	Amer. Con. Oilfields	$11,018,000	$5	.....	.....	$6.75	.45	2 1/16	.55	1½	.53
8⅝	1⅛	10,300	2	1¼	2	Amer. Maracaibo	700,000	N.P.	.....	.....	..	..	7½	2¾	9½	3⅛
5	1⅛	No sales.				Argo Oil (sh)	683,971	$10	.....	.....	..	..	2¾	1	4½	2¼
62	7⅞	No sales.				British-American (sh)	1,311,321	N.P.	25cQ	10- 1-29	85¼	60	40	20½	55	32⅜
4⅞	1⅝	2.400	1⅜	1	1⅜	Carib. Syndicate	$131,250	25c	.....	.....	28⅜	9¼	28¼	15½	4½	3⅞
68½	20	312,300	30	22½	30	Cities Service (sh)	24,290,359	N.P.	30cQ*	11- 1-29	..	..	58¾	40¼	90⅞	54
98¾	93½	2,100	88	85¼	87¾	Cities Service pfd. (sh)	1,500,000	N.P.	50cM	11- 1-29	..	..	95⅜	87	103½	94½
2	½	No sales.				Colombia Syndicate	$2,000,000	$1	.....	.....	3½	1¾	3⅞	1⅛	3¼	.76
11⅛	2½	2,000	4½	3¾	4½	Cons, Royalty	$5,000,000	$10	15cQ	.....	..	..	9¾	6⅞	8⅞	6¼
11¾	5⅝	52,700	7¼	6⅛	6¼	Creole Syndicate (sh)	5,977,873	N.P.	.....	.....	16	10	14⅞	9½	17½	9½
2½	¾	200	¾	¾	¾	Crown Central (sh)	578,000	N.P.	.....	.....	..	..	3	.50	3¼	.76
26	7¾	11,900	10⅛	7⅝	9⅜	Darby Petroleum (sh)	1,019,392	N.P.	25cQ	10-15-29	7⅞	6¾	12	4	33½	3¼
11	2	1,100	5¼	4⅛	5¼	Derby Oil & Refining (sh)	500,000	N.P.	.....	.....	..	..	2½	74	2¼	1
44	20⅞	No sales.				Derby Oil & Refining pfd. (sh)	48,500	N.P.	.....	.....	..	..	16¾	4	21⅛	7½
209	121⅛	17,500	165¼	115	135¼	Gulf Oil Corp. (sh)	4,504,921	$25	37½cQ	10- 1-29	98	92	118	86¼	165	101⅛
2⅞	⅞	10,200	1	⅝	¾	Intercontinental Pet.	$5,682,000	$5	.....	.....	$3.00	.83	2½	.80	3⅜	1
3⅝	1¼	800	2	1¾	2	Kirby Petroleum (sh)	750,000	N.P.	.....	.....	..	..	2¼	1⅛	3	1¼
6⅛	2¼	10,900	3	2	2⅛	Leonard Oil & Dev.	$50,000,000	$25	.....	.....	12¼	5¾	10⅞	5⅛	9⅜	5⅛
38⅞	19	2.500	21½	18⅛	20	Lion Oil & Refining (sh)	250,000	N.P.	50cQ	10-27-29	27	20	27½	20	43⅞	20
50	28	9.900	36⅛	28	32⅞	Lone Star Gas (sh)	5,000,000	N.P.	20cQ	9-30-29	46	30	59⅜	37	69⅛	48½
1¼	¼	5,600	⅜	¼	⅜	Magdalena Syndicate (sh)	850,000	$1	.....	.....	2⅞	1	2⅞	.80	1⅞	.50
38½	17¾	100	15	15	15	Margay Oil (sh)	160.000	N.P.	50cQ	10-10-29	34	12½	52	12	48½	32
6⅜	3	1,700	3½	2½	2⅜	Mexico-Ohio Oil	.....	...	.....	.....	8	5½	12⅛	5	8	2⅜
1½	⅝	800	⅝	¼	¼	Mountain & Gulf	$4.000.000	$1	2cQ	10-15-29	1¾	1⅛	1½	1	1¾	.76
22⅞	7	7,900	9	7⅝	8½	Mountain Producers	$1,682,182	$10	40cQ	10- 1-29	26	23	29¼	22¾	28⅞	19½
5	2⅛	500	2⅝	2½	2½	New Bradford Oil	$1,095,291	$5	12½cQ	10-15-20	6⅝	5	5⅞	4⅝	5⅜	4¼
9⅜	2¼	5,100	3⅛	2⅝	2⅞	New Mex. & Arizona	$1.000,000	$1	.....	.....	..	..	16	9¼	11⅞	7⅛
18½	8¾	No sales.				North Central Texas (sh)	400,000	N.P.	15cQ	9- 3-29	..	..	12¾	9½	14¼	8½
3½	½	3,900	¾	⅛	¾	Pandem (sh)	489.875	N.P.	.....	.....	10⅛	5⅞	9⅜	3¼	6	2⅛
10¼	3¼	4,200	3¼	2⅝	2⅝	Pantapec Oil (sh)	1,506,600	N.P.	.....	.....	12¼	11¾	12⅛	7	15⅝	8½
7⅜	4⅜	No sales.				Pennok Oil (sh)	150,000	N.P.	.....	.....	22¾	12	13½	5⅛	7¾	4⅞
16	9⅝	300	10	10	10	Red Bank Oil (sh)	250.000	N.P.	.....	.....	17	8½	24⅜	7	18	4⅞
8½	1⅛	3,300	3	2⅛	2½	Reiter-Foster (sh)	388.584	N.P.	10cQ	9- 1-29	30¼	12	15½	3½	12⅞	4⅛
11	3	700	3¾	3¾	3¾	Ryan Consolidated (sh)	500,000	N.P.	.....	.....	7	4½	7	4½	12	4⅛
5⅞	1	5.600	2⅜	2¼	2¼	Salt Creek Consolidated (sh)	1,286,300	$10	10cQ	10- 1-29	10	7⅛	8	5¼	7¼	5½
25⅞	9⅛	6,500	10¾	9⅛	10⅜	Salt Creek Producers (sh)	1,496,859	$10	50cQ	11- 1-29	35	24⅛	35½	27¼	35	23⅛
2½	1⅛	No sales.				Savoy Oil	$750,000	$5	.....	.....	6⅞	1¼	7	1¼	3½	1
145	82	No sales.				Transcontinental pfd. (sh)	157,500	$100	.....	.....	92	63½	92	63½	93¼	75
6½	1¾	1,600	2¾	1⅞	2½	Venezuelan Petroleum (sh)	755,090	$5	5cQ	8-15-29	8	4½	7⅜	4¼	9⅛	4⅜
9⅛	4	700	3⅞	2	2¼	Woodley Petroleum	$500,000	$1	.....	.....	8⅛	5½	7	4¾	8¼	4⅞
2⅞	⅛	200	⅞	½	½	"Y" Oil & Gas (new) (sh)	100,000	N.P.	.....	.....	6½	6	6	1¾	8⅜	2⅛

*Including extra in stock.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Members of New York Curb Market, Kennedy Building, Tulsa, Okla.

1929 High	1929 Low	Week ended Nov. 16 Sales	High	Low	Close	Stocks—	Outstanding capital	Par value	Div. rate	Last paid	1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low
18	13¼	3,200	14	14½	15	Anglo-American Oil	£4,192,635	£1	.....	6- 5-29	21	16	21⅝	17⅝	22⅜	14⅞
2½	1	1,000	1¼	¾	1	Atlantic Lobos (sh)	500,000	N.P.	.....	.....	..	..	3⅜	¾	5	1¼
46½	25½	No sales.				Borne Scrymser	$1,000,000	$25	$18.A.	10-15-29	76	65	69	50	56½	44½
74¼	55	1,100	61⅞	56	59¾	Buckeye Pipe Line	$10.000,000	$50	$1Q	9-14-29	59½	42	60	45	76	53
210	125	400	138	130	130	Chesebrough Mfg.	$3.000,000	$25	$1Q*	9-30-29	82½	65	126	76½	161	117
29	8	5,300	17	10	13½	Continental Oil	$36,057,840	$10	.....	12-15-27	25⅞	17½	22⅝	16¼	23	16
95	45	50	49	49	49	Cumberland Pipe Line	$1,500,000	$50	$1Q	9-15-29	137	102	137	89	114	67
70⅛	49¾	No sales.				Eureka Pipe Line	$5,000.000	$100	$1Q	11- 1-29	63¾	43	68½	47	88	64⅛
6⅝	5	No sales.				Galena Signal Oil	$16,000,000	$100	.....	.....	32½	9⅞	13½	3½	13	4¼
128	72½	19,100	98	74⅛	86	Humble Oil & Refining	$74,103.300	$25	30cQ†	10- 1-29	68½	52	68½	54	114¾	59¼
340½	285	350	272½	260	260	Illinois Pipe Line	$20,000,000	$100	$10S.A.	6-15-29	144½	125½	182	123¾	290½	176½
41	22	23.200	29⅛	23⅛	28	Imperial Oil Co., Ltd. (sh)	26,421,768	N.P.	12½cQ	9- 3-29	..	..	64¾*	37¾	104	56¾
33¾	26⅛	1.200	30	26	30	Indiana Pipe Line	$3,000,000	$10	50cQ‡	11-15-29	72½	58	94½	61	91⅞	74⅜
30¾	15	63.300	21⅜	18½	21¼	International Pet. (sh)	14,247,088	N.P.	12½cQ	6-25-29	35½	28¾	29	28¼	55	35
25⅞	12	9,700	16⅞	14	16¾	National Transit	$6,362.500	$12.50	25cQ	9-26-29	20⅜	12½	24	13½	32⅜	19⅜
16	10	100	12	12	12	New York Transit	$1.000,000	$10	40cQ	10-15-29	51½	27¼	44½	31¼	75	38½
63	45	No sales.				Northern Pipe Line	$2,000.000	$50	$2S.A.	7- 1-29	80½	64	100	70	69	56½
79⅛	64⅛	14.000	70⅞	65⅝	68	Ohio Oil	$60,000,000	$25	50cQ‡	9-16-29	67⅜	55¾	67⅞	52	84	58½
44½	21	1,500	20⅞	20	20	Penn Mex. Fuel	$10,000,000	$25	50cQ	12-15-28	24¾	15	39	12	84	28
50	34⅞	300	34½	33	33	Solar Refining	$4.000.000	$25	$1.25S.A.	6-20-29	...	...	...	...	...	...
22½	13	700	21	20½	20½	Southern Pipe Line	$1.000.000	$10	50cQ	.....	74½	61½	27¼	15½	19	15
60¼	35⅛	2,400	40	38	40	South Penn Oil (new)	$30,000,000	$25	50cQ	9-30-29	50	34½	41½	35	71⅞	36¾
70	60	13.500	45	41	41	Southwest Pa. Pipe Lines	$1,750,000	$50	$1Q	10- 1-29	56	47½	83	55½	102	70
64	45	189,900	52⅞	48½	52¼	Standard Oil of Indiana	$348,175.069	$25	62½cQ	9-16-29	70½	60½	81½	64⅝	95⅞	70⅞
32½	18	7,300	28	19⅛	28	Standard Oil of Kansas	$8.000.000	$25	.....	6-16-24	36½	16½	20⅞	14⅝	37¾	15
46⅞	35⅛	38.000	36½	29¼	36⅛	Standard Oil of Kentucky	$25,654,516	$10	40cQ	9-30-29	134⅜	108	130	111½	179¾	122¼
50¼	45	800	45⅝	40⅛	40⅞	Standard Oil of Nebraska	$4,649,225	$25	62½cQ‡	9-30-29	51⅛	42	49½	40	54⅞	39⅞
129	60	40,100	88¼	80½	84½	Standard Oil of Ohio	$14,000,000	$25	62½cQ	10- 1-29	372	288	87½	72	134	71
18	10	100	10	10	10	Swan-Finch Co.	$861,466	$25	.....	1-15-29	21	15	21	14½	23½	16
133¼	75	30,000	98	88	93⅞	Vacuum Oil Co.	$126,180,350	$25	$1Q	9-30-29	109⅜	90¼	..	..	111	72

*Plus 50 cents extra. †Plus 20 cents extra. ‡Plus 25 cents extra.

SOME PHYSICAL PROBLEMS IN OIL RECOVERY METHODS

(Continued from Page 44)

lent results. When the permeability is above 5 it is doubtful whether augmented pressure is necessary or desirable.

The permeabilities above quoted are c.c. per minute passing through a disk 5 m.m. (one-fifth inch) thick, 1 c.m. in diameter under a head of 85 pounds pressure. These are the actual dimensions and quantities used and are retained for their convenience. This small test disk is easily prepared from a small sample, and is easily manipulated in the test. The rate of flow is not too rapid to measure nor so slow as to require correction for evaporation. These permeabilities may be reduced to absolute units (cc/sec/cm² per megadyne/cm²/cm) by dividing by 553.

It may be noted from the data of the table above that there is no apparent relation between porosity and permeability. While the porosities vary only slightly, the permeabilities vary by a factor of only a tenth the permeability since permeability is proportional to the product Porosity x Pore Section. Thus a sand of high porosity may flood very poorly though the grains are of the same size and the oil of the same character.

5. Fall of Permeability with Time

It is common field knowledge that a new flood well takes water at a rapidly decreasing rate and the decrease continues for days or even weeks. This effect has been attributed (a) to the form of the advancing flood; (b) to the banking of the oil by the closing of gas filled voids; (c) to impurities in the flood water choking and pores; and (d) to drilling debris carried into the pores. Some producers have gone to great expense to filter their flood water and to oxidize and precipitate ferrous iron from it. It seemed worth while to make some laboratory tests by measuring the direct flow of pure water through small disks of sand.

With the regular test disk described I find that in a raw sand the permeability falls to half of initial value in 1 hour, to a fourth in 10 hours and to a sixth in 30 hours. (Figure 3.) An initial soaking and washing in gasoline, alcohol or CS_2 makes no difference nor does thorough drying in a vacuum over P_2O_5. Even after 50 hours the rate of flow continues to fall off slightly. We have eliminated effects (a) and (b) in these tests and probably (d) also. The District of Columbia water is very pure, soft and well filtered but to guard against stray iron from the pipes, the test piece was covered by a thick pad of filter paper but without effect on the fall of the rate of flow. Some swelling and choking effect in the sand pores is indicated.

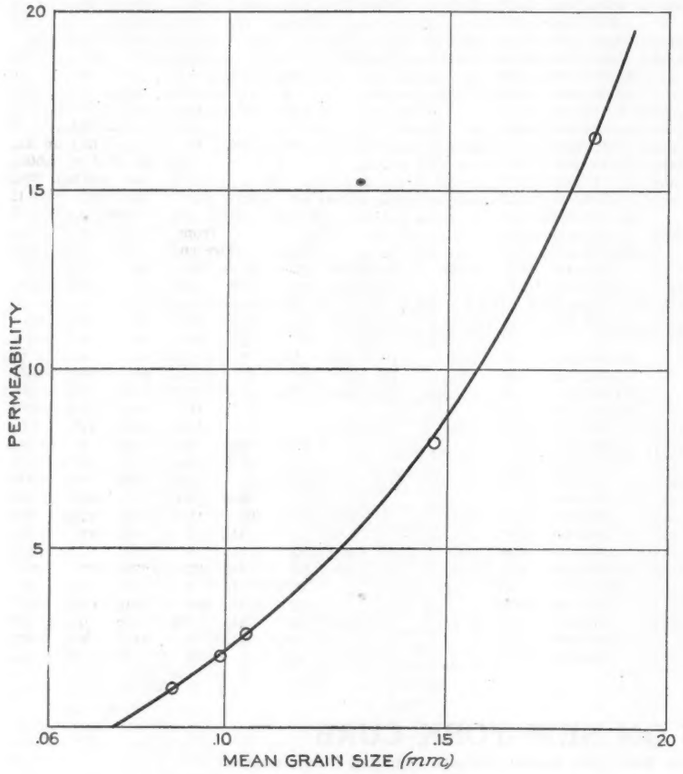


Figure 2—Permeability and mean grain size.

15:1. The effect is even reversed in two cases. The porosity of 300-mesh and of 65-mesh loose sand might each be 30 per cent yet the permeabilities be zero and very large in the two cases. Permeability depends upon the sizes of the pores more than on their aggregate volume.

There does appear to be a relation between permeability and grain size, however. Plotting these quantities, the curve shown in Figure 2 was obtained, a surprisingly definite relation holding for this group of sands which are quite similar in pore shape and porosity but differ widely in grain size and pore size. This curve indicates that the permeability would drop to zero for a mean grain size of .075 m.m. the size just passed by a 200-mesh screen—regardless of porosity, for sands and pores of this particular type.

Such a relationship between permeability and grain size as is shown in Figure 2 could doubtless be found for other oil sands with other types of pores. Some limes appear to have a higher permeability for the same porosity, but for a fine sand the Bradford is an extreme type in having large smooth pores but relatively few of them. The same sand shaken down loose would have twice the porosity but

The Bradford sands are known to be in a state of starvation as regards oxygen, water and iron. Hydration of the fine material lining the pores might cause choking, not instantly but within a few hours. Heating red hot destroys the ability of silica and of most silicates to hydrate for a long time. A heated test piece retained its initial permeability for an hour and then the flow fell off very gradually. Treating with a strongly alkaline solution also inhibits hydration and a test piece treated first with soda solution showed no fall in rate of flow for an hour and after that but little. Acid promotes hydration and acid was found to choke the pores and stop the flow from the start.

Even when the initial large drop in permeability, due probably to hydration and swelling, had been prevented by ignition or by soda treatment of the test piece, there occurred a slight decrease after the first hour or two. The only possible cause appeared to be air or other gas dissolved in the water or carried in by it and accumulating in tiny bubbles in the pores, choking them (the Jamin effect). Sucking air with a jet pump into a test piece previously saturated with water was found to completely choke its pores. Boiling flood water to remove air from it would be too expensive but it might be flowed through a vacuum chamber in a thin sheet at a slight expense. A field test with vacuum treated soda solution would be interesting.

Discussion of Some Field Problems

While I have shown that certain physical data may be correlated to some field problems and that photomicrographs of oil sands have an important story to tell, these results apply only to the Bradford Field and even there are of little assistance in solving some of the most difficult engineering and financial problems. The rapid advances in flooding practice from the circle to line flood and from this to the five point and seven point pattern floods represent not attempts to get all the oil but to decrease recovery costs per barrel recovered. Augmented pressure is a further attempt at the same result. Other developments are in prospect.

The permeability tests recorded above indicate that even in the most favorable locations, in which the sand (to the eye or the lens) does not vary appreciably from top to bottom, the permeability may vary by two to one or even three to one. This being the case, it appears that present flooding methods take the oil only from the upper looser sands. The finer lower sands are just as rich in oil but will not yield to the same pressure gradients that move the oil above. Capillarity and time would doubtless be effective on these finer sands or they may be packed off and reflooded.

Pockets of unflooded oil sand are left between wells in either line or pattern flooding. That these pockets may represent a considerable fraction of the total area is indicated by some intermediate drilling that has been done. As yet no operator appears to have tried either of the two methods proposed to obtain a clear linear drive; the sawed slots proposed by John L. Rich or the long crack produced by simultaneous tamped shots suggested by A. F. Melcher. In the five point flood the peripheral path is 1.4 times the shortest path direct between wells. The maximum and minimum pressure gradients are in the same ratio. Therefore, if pockets are left in a five point flood, a fine sand would be left unflooded if above or below it were a sand having 1.4 times as great permeability.

The use of enhanced water pressures was not highly regarded at first since it seemed likely to increase the by-passing of oil, but it has been found to give nearly or quite as much oil in much less time. After all, 1,500 pounds pressure on a 150-foot drive is only 10 pounds per foot which is a very moderate gradient. Laboratory tests of permeability were made at 500 times this pressure gradient.

Still another indication that present flooding is only flushing out the more permeable upper sands lies in the fact that the salts brought out by the flood waters are of quite a different character from those obtained by crushing and extracting the lower oil sands. The salts in the flood waters are 70 per cent sodium salts while those extracted from the oil sand cores are nearly 70 per cent calcium salts. The greater solubility of the sodium salts would hardly account for this great difference.

If one may venture an estimate from but a few tests, it would appear that even in flooded-out areas fully half the oil is still in place in the lower tighter sands. To get this out will require engineering skill of a high order. Until this is done it is useless to consider such refinements as the use of chemicals to loosen the oil from the sand.

ADVISER TO OIL BOARD

WASHINGTON, D. C., Nov. 16.—Secretary of Interior Wilbur, as chairman of the Federal Oil Conservation Board, has announced the appointment of Major General Lytle Brown, chief of engineers, War Department, as a member of the technical committee of the Oil Board in the place of General Edgar Jadwin, resigned.

The membership of the technical committee now consists of George Otis Smith, geological survey, chairman; Scott Turner, Bureau of Mines, Department of Commerce; Rear Admiral H. H. Rosseau, Navy Department, and General Brown.

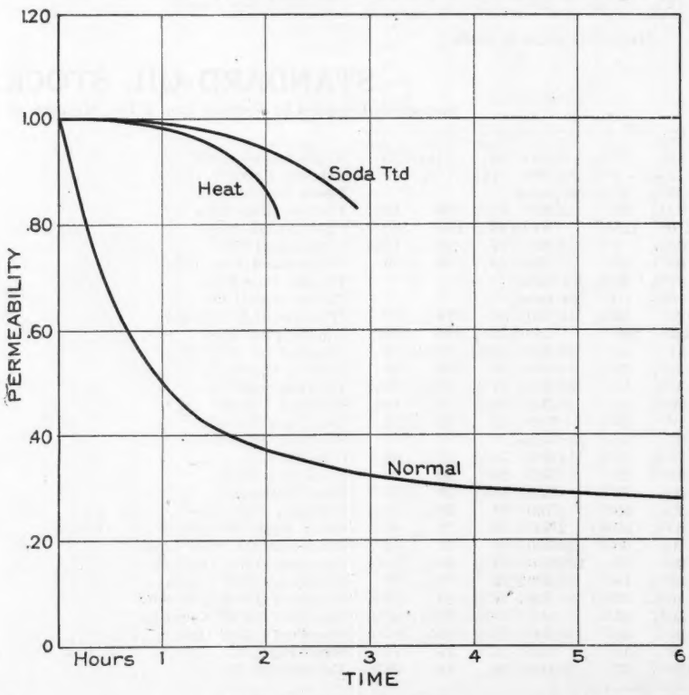


Figure 3—Permeability and time.

GASOLINE BECOMING MORE STANDARDIZED

(Continued from Page 43)

At the 50 per cent point, the Government specifies that the temperature shall be no higher than 257° F., and of the 16 premium fuels tested, half of them fail at this point.

Most surprising is the fact that four of the six Ethyl Gasolines fail to pass this specification. At the 90 per cent point, the Government demands that the temperature shall be no higher than 356° F. This specification would eliminate 13 of the 16 gasolines tested as premium fuels, and with those not passing would be five of the six samples of Ethyl Gasoline.

These eliminations would be made on the basis of the distillation test alone and it is possible that other specifications would eliminate one or two of the remaining three samples that would pass the distillation test demanded by the Government on premium or special motor fuels. These results may be looked upon by some as indicating that Tulsa is not being supplied with the quality of gasoline set up by the Government as a premium gasoline but this is in error. The government specifications were drafted with the idea of providing for special uses, rather than common uses. These special uses include motor fuel for ambulances, fire apparatus and other emergency agencies and not for the general use in pleasure cars and trucks.

Sold Below Market

In reviewing the tests of the samples of gasoline secured from the "cut rate" stations, no marked inferiority in quality from a distillation standpoint may be seen. Only one comparison may be drawn regarding the trend in the quality in the past year, since only one of these was sampled and tested a year ago. A year ago. No. 251 had a distillation range practically the same as the general run of refinery gasoline. This year the distillation test indicates that the gasoline is a blend of a large percentage of natural gasoline and naphtha. This is further substantiated by the fact that the gravity this year is much higher, the 20 per cent point is lower and the distillation loss much higher. The endpoint of this year's sample was higher than any other gasoline tested.

Sample 252 is not an unusual gasoline and in general compares rather closely with the gasolines sold at the regular price except that it fails to pass the 90 per cent specification for U. S. Motor gasoline. This has been discussed before with respect to the regular motor grade sold at the general market and it will be remembered that three samples in this group also failed to pass the U. S. Motor specifications at the 90 per cent point.

Aviation Gasolines

It is not possible to show the trend in the aviation gasolines over the past year for this is the first time such samples were collected and there still remains considerable doubt in just what constitutes an ideal commercial aviation gasoline. The municipal airport at Tulsa sells four gasolines. These are manufactured by the Skelly Oil Co., the Independent Oil & Gas Co., the Shaffer Refining Co. and the Chestnut & Smith Corp. Another sample is that of the Sinclair Refining Co.'s aircraft gasoline, and is sold through its regular stations at 22 cents, whereas the aviation fuels at the airport are sold at 26 cents. Two of the five fuels tested are made by the superstabilization of natural gasoline while the other three are made from the crude and blended with natural gasoline. The low distillation losses identify these fuels as special fuels, considering the low range of endpoints.

A rather wide range of difference exists among the five fuels. However, only one of them fails to pass the Government's specifications on the domestic grade of aviation gasoline. The only failure comes at the 5 per cent specification where the Government requires that 5 per cent distill over between 122° F. and 167° F. Sample 304 misses this with the 5 per cent mark at 102° F. Over the balance of the distillation all samples show a liberal margin of allowance and show up particularly well at the upper half of the distillation range. The allowable endpoint is 374° F. whereas the highest endpoint of the samples collected was 346° F.

Collecting Samples

Realizing the importance of obtaining true samples every precaution was taken in their collection. A member of The Oil and Gas Journal's staff personally collected them from the respective companies' stations. A 1-gallon red stoppered can was used to receive the sample and in each case this was rinsed out at least twice. Then the sample was drawn into the can and from here it was poured into glass bottles which had also been rinsed out with the respective gasoline. These bottles were tightly stoppered and taken direct to the laboratory for testing. There they were kept in a refrigerator until tested. Each sample was identified by a number and the laboratory did not know the source of the gasoline at any time during the testing.

AVIATION GASOLINES

	315	303	350	351	311
Gravity	69.2	73.0	65.5	76.9	63.4
Initial boiling point	104	108	106	90	110
Per cent at degrees Fahrenheit 5	134	128	144	102	142
10	144	134	160	110	156
20	156	142	176	118	180
30	170	148	194	126	196
40	180	156	206	136	210
50	190	164	216	148	220
60	200	176	228	162	232
70	210	192	238	180	244
80	220	208	254	202	258
90	236	226	276	234	278
96	266	266	288	272	310
Endpoint	306	322	332	318	346
Per cent residue	1	1	1	1	1
Per cent loss	1	1	1	1	1

GROUP DEVELOPMENT ON WYOMING DOME

(Continued from Page 41)

bur approved and adopted the recommendations of the departmental committee. Negotiations for a group development were conducted with H. C. Brettsneider, vice president of the Midwest Refining Co. representing that company; John Barnett, president, representing the Mountain Producers Corp.; H. A. DeCompeign, reresenting French interests; and A. D. Aitken, representing the Salt Creek Producers Association, these companies contracting with the holders of leases, permits and placer claims, for the development if and when extensions should be granted and all title defects corrected. The program provides for the first test to be drilled on the Midway Dome with the Midwest Refining Co. in charge of the operations. The acreage will be distributed among the various interests so as to come within the limitations of the leasing act.

After all details of the plan were studied by the special committee and Secretary Wilbur, the approval of the latter was given to the extension of the permits and the final contracts then were signed. The recommendations of the special committee were that the applications for extensions be granted for two years from November 1, 1929, and that the extensions be based on the condition that no drilling other than the three test wells, one on each structure, shall be drilled on government land during the period unless sooner authorized. In this manner, exploration of three important structures, with all parties representing the Government, the State, and the operators, and holders of permits and leases, uniting in a spirit of co-operation in a true conservation program is brought about.

Drilling Will Be Deep

The drilling will be deep. The Midway structure has approximately 50 feet more closure than Salt Creek, or 1,250 feet. The Geary Dome has 300 feet more closure than the Big Muddy. Detailed geology on the North Geary Dome, which lies between the other two, has been difficult on account of the overlay of windblown sand, but enough data have been secured to indicate a separate and distinct dome. The surface at Midway is Upper Cretaceous, being a member of the Montana group. The Foxhills sandstone forms the escarpment. The depth to the First Wall Creek is estimated at 4,755 feet, compared with 1,100 feet at Salt Creek, and to the bottom of the Sundance, 7,725 feet, compared with 3,075 feet at Salt Creek. The Tensleep is expected at 7,725 feet. Within this range of depths there are 12 sands which are productive in other fields. At Geary, the same sands are expected at 4,890 feet to 7,860 feet, and at North Geary, at 5,390 to 8,360 feet.

One of the interesting features of this program is that before any work will be done, or money expended in developing production, that all interests involved will be brought into a harmonious agreement that will enable the companies to systematically drill and produce the areas, without wasteful offset drilling and to bring about a true conservation of any oil that may be found. It is considered a crystallization of the sentiment for unit development which was put into effect in Salt Creek in 1921-22 with government co-operation in which all have been satisfied and the field produced in the most economical and thorough manner.

OIL INDUSTRY FACING TEST NEXT YEAR

(Continued from Page 46)

enlarged demand in the spring, but was resumed in the fall under fear of price cuts and spread to other parts of the Mid-Continent. In California, the state legislature in May passed the Lyons Act which prohibited the waste of natural gas in connection with the production of crude oil and also made it permissible for operators to co-operate in the development of single oil pools; this act was designed to become effective September 1, but fell into litigation under opposition by smaller operators, and was supplemented in early November by drastic voluntary proration, after a severe price cut had been posted. These various efforts finally succeeded in bringing crude oil supply into approximate equilibrium with current demand, but only after nearly 55,000,000 bbls. of crude oil were added to stock.

Operating Economies

The fourth factor that contributed to earnings was a lowering of costs, which was contributed to by the additional volume of business done and by closer operating economies, as well as by a lessening of concessions below the tank wagon gasoline price offered to dealers by refiners. That a larger proportion of the retail price of gasoline than during the year before accrued to the industry is clearly indicated by the fact that the retail price of gasolines averaged lower in 1929 than in 1928 by about three-quarters cent per gallon. Whether this improved marketing situation was a resultant of the better statistical position of gasoline which characterized 1928, or was brought about by a more efficient handling of the marketing problem, is not entirely clear, although probably some element of each entered.

Progress Toward Rationalization

The petroleum industry is obviously seeking to effect a transition from a condition of laissez faire, in which price is the only element of economic control, to one of rationalization, in which a planned control of supply is the objective. In making this transition, however, a combination of rationalization and price control must function, and the events of this year have indicated that the industry has, in some instances, been too quick to abandon price control or negligent in its application. For example, in the spring, proration in Oklahoma was abandoned and prices were too promptly advanced, thus stimulating wildcatting and drilling and in consequence recreating the necessity of proration later in the year. In California crude oil prices were maintained for months, in the face of rapidly mounting stocks, and a cut was instituted only at the eleventh hour, when an earlier price reduction would in all probability have led to a curtailment of supply before such a large surplus of oil was accumulated. These two price situations, if more constructively handled, would have doubtlessly lessened the accumulation of stocks and retarded the output of gasoline, to the net gain of the situation at present.

Voluntary Curtailment

But, however, opinions may differ as to the methods of effecting control of crude oil, it is significant that in recent weeks the supply of crude oil in the United States, almost wholly by voluntary agreements for prorating production in flush fields, has been curtailed from a peak of 2,973,000 bbls. per day on August 31 to an estimated level of 2,600,000 bbls. per day at this writing. This action brings supply into balance with current demand and represents a significant change from the old method of waiting on price cuts to slow down drilling, but it is important that proration of supply be given a permanence that will consolidate the gain. As the present restrictions are the result of separate action on the part of various groups of operators in many parts of the country, it would appear that an element of instability is present that will require further co-ordinative action to eliminate. Many think that a sounder way to production control lies through a proper restriction of drilling, for it is a waste of capital and energy to complete more wells than are needed and then pinch in the surplus, but such methods require time to perfect and are not now available for emergency action.

Refinery Operations

Also, while rationalization of the crude oil supply has been at least momentarily attained, there is equal need that the operations of refiners be brought under control, in order that refinery output may be reduced from the high levels now prevailing which are resulting in an overbountiful supply of refined products. For the next few months the consumption of gasoline will show a sharp seasonal decline, and refiners have always had difficulty in accomodating their activities to the seasonal let-up in demand. This problem presses forward for attention at this juncture, particularly in view of a coming recession in business and its effect upon demand, and the refining industry faces a situation that may be overlooked only at its own expense. Fortunately, refiners have recently been provided with current weekly figures on refinery intake and stocks of gasoline and fuel oil, gathered and published by the American Petroleum Institute, so that a statistical basis for control is now available for their use.

As to the view ahead, it may be said that the oil business, through its rapid expansion, has become dependent upon rationalization for any early cure of overproduction. Any relaxiation in control now, with the momentum gained by supply and the large stocks on hand, would lead to unfavorable results. Furthermore, control of crude oil will be minimized in its effects if refinery operations are not likewise adjusted to lower levels. In both its near-term and long-range aspects the problem is very complex; the industry has been working on it for about three years only; and the forces available for its solution are not fully marshalled—many of them, indeed, such as unitization of oil pools, further integration of

oil companies, rationalization of refinery operations, and changes in the basic law of oil and gas, being still in their formative stages. Will the industry consolidate its gain and take the additional steps necessary to negotiate successfully the season of lowest demand and the exigencies of next year; or will control be relaxed resulting in further overproduction? The answer cannot yet be given. But this much is clear: In the year ahead, the petroleum industry will be afforded an interesting test of the ability of its collective management to extend control and adjust its operations to the new phase of the business cycle.

CURTAILMENT BENEFIT TO THE PRODUCERS

(Continued from Page 45)

than half of the increase is noted in the Pennsylvania Grade Fields where the market was cut $1 per barrel between July 1 and October 1. At the close of June, just before the first cut in Pennsylvania Grade crude there were 411 wells drilling in the Eastern Field but at the close of October, with crude $1 a barrel below the June 30 figure there were 500 wells drilling, a net increase of 89.

Looking Backward

It is all "water over the dam," but we cannot refrain from going back a few years and giving an example of what might have been, and for the sake of brevity will confine the story to one state, although it could be told just as well of any or all the producing states. It has reference to conditions which the present great movement to hold back excess production and to unitize drilling and production operations of the future, is seeking to avoid.

In 1926 Oklahoma produced 179,195,000 bbls. of oil, according to the final figures of the United States Bureau of Mines, and the same authority says an average price of $2.31 per bbl. was paid for the oil, yielding production and royalty owners $413,900,000 that year. The price was subjected to a number of cuts beginning late in 1926 and continuing in 1927 lowering the average for Oklahoma crude in 1927 to $1.43 per bbl. These repeated cuts in prices amounting in all to 88 cents per barrel did not stop drilling, or did not stop the bringing in of new production. On the contrary the production for 1927 was 254,189,000 bbls., according to the Bureau of Mines, and for it producers and royalty owners were paid $397,200,000. Had the increased production been left in the ground until refinery requirements called for it and the 1926 price been maintained, producers would have received not $397,200,000 but $588,795,900 for the same volume of oil. As it was, in their anxiety to get production regardless of price they sacrificed something like $191,000,000 in one year. The production of Oklahoma in 1926, 1927 and 1928, according to the Bureau of Mines, aggregated 663,574,000 bbls., for which an average price of $1.746 per barrel was paid. The production yielded $1,158,700,000. Had the production been curtailed to requirements of refiners and over a longer period of time it would have yielded $1,532,859,400, at the 1926 average price for crude. By not keeping excess production in its natural storehouse Oklahoma producers and royalty owners passed up an opportunity to add $374,159,400 to their incomes.

LAND MEN APPROVE UNIT OPERATION

(Continued from Page 41)

posedly unimportant territory, the area could be taken in hand and arrangements made to develop it sanely along with other flush pools. The areas which the inquirers had in mind were, for example, Okmulgee County or Creek County, Oklahoma; Archer, Wilbarger and other North and Central Texas fields known as old oil fields.

The Plan in Van Zandt

The question was asked as what provisions could be made where unitization was held up by differences of opinion as to relative values of the leases in the proposed block. Mr. Davis answered this by pointing to the plan adopted within the past fortnight in Van Zandt County, East Central Texas. The Pure Oil Co. recently completed a big well in Van Zandt County. The Pure Oil Co., Humble Oil & Refining Co., Sun Oil Co., The Texas Company, and the Shell Petroleum Corp. instead of rushing into a mad drilling campaign as was done in Powell, Wortham and Mexia in the same territory, pooled their acreage and the area will be developed on the unit plan. The block of pooled leases covers a large area and, of course, there was a difference of opinion as to the value of the properties near and farther away from the discovery well. The companies cast all differences aside and agreed to operate on an acreage basis for the first two years, at the end of which it is expected that a basis may be arrived at for a true adjustment of values. In 1931 a committee of engineers of the interested companies will fix an operating agreement for an additional five years, and at the end of that time another adjustment will be made for the ensuing five years. This Van Zandt area, which may be as important as Powell or Mexia, will be developed to fit the marketing conditions.

Small Producer's Help Needed

In discussing the status of the small operating company and the individual operator in the plan for unitization, Mr. Davis said that there was no wish on the part of the big companies to crowd out their smaller producing brethern, and to emphasize this Paul McIntyre, of the Phillips Petroleum Co., called attention to the fact that William N. Davis was an individual oil producer when he conceived the idea of co-operative leasing and production methods back in 1920. He had carried on his campaign for years while yet an independent operator and he had only been an officer in a large oil company a few years, so that unitization was not a big company proposition at all. Mr. Davis followed this up with the thought that the final success of the plan lay in its general adoption. The business of producing crude oil had been a losing venture when in the aggregate the cost of leasing and drilling is compared with the returns for the product. The ideal situation in the oil business, he said, would be that wherein every producing property in the country could be made to pay until the period of exhaustion. Common sense drilling and producing methods can accomplish this without placing a burden on the public, because unitization will greatly lower operating overhead by reducing the factor of duplication of effort, increasing the ultimate production of oil and stabilizing a fair price for the product. Foreign oil fields are kept down to a point where the mere turning of a spigot brings the oil on the market when needed and a reversal of the operation shuts the oil in its natural store house. Unitization, if entered into whole heartedly by producers in general, will make it possible to profitably produce oil from the hundreds of thousands of oil wells that bear the burden of every depressed crude price schedule.

Report of Land Men

Following the meeting the committee of land men comprising Fred S. Cook, chairman, Ray F. Kinnan, G. A. Schwab, J. E. Gratton, Norwood Lykes and C. O. Starke went into conference and adopted a set of recommendations for submission to the legal committee on unitization. In part the recommendations are as follows:

Contracts

Your committee recommends that the legal division of this committee collaborate and draw up necessary types of contracts and outline procedures in harmony with this report.

1. Form of contract for purchase of undivided interest in and the operation of a unitized block of acreage.

2. Contract providing for the unitization of checkerboard and spread acreage already owned in severalty.

3. Form of contract providing for the individual operation by each individual company of the acreage contributed by it to the pool.

4. Form of contract to be used where for any reason unitization is found to be unattainable, providing for co-operative development and production from such area.

5. Form of contract to be used where unitization cannot be otherwise effected because of lack of agreement on relative values and providing for periodical adjustment of interests based upon records of actual production as development shall progress. This provision may take the form of:

(a) A simple agreement as between responsible companies;

(b) May provide for giving of bond to secure the adjustments to be made;

(c) May take the form of a reserve to be built up out of proceeds of the oil with which to effect later adjustments.

Operation Agreement

The contracts, in the first instance, should provide an operation agreement:

1. Containing details as to overhead and the carrying on of future development and operation;

2. Providing for the disposition of material in the event of a dry hole being drilled; preference right being given to the operating company to purchase such material at the figure which may be offered by any other company or at the appraisal agreed to by other members of the pool;

3. Each participating company shall be given the right to run and dispose of its proportionate part of the production from the entire acreage;

4. Contract should provide that all charges for development shall be at the prevailing rate for similar service in that area;

5. Contract should provide for the creation of a committee representative of each participating company whose consent shall be secured before the commencement of any work or incurrence of any liability which may exceed five thousand ($5,000) dollars;

6. It shall be the duty of this committee to decide by a majority vote upon the rate of development and location of all wells;

7. Provision should be made in the operating agreement for liability insurance.

8. Each company should be obligated to continue to pay the rentals which may fall due upon the acreage which they contribute to the pool during the life of the contract and the other parties shall reimburse it for their proportionate share of the rental.

9. The right of assignment of undivided interests shall not in any manner be restricted.

Titles

Your committee recommends that in the matter of titles all titles in the pool should be examined by one member of the pool except as to its own acreage which is to be examined by some other member of the pool and that the pool be formed upon the basis of the titles found to be acceptable at that time.

Plan of Operation

Your committee's opinion is that the committee plan of operation is more complicated and less desirable than the selection of a single member of the pool to carry on the development and operation. The committee form of operation is considered preferable to failure to secure unitization.

It is the sense of your committee that unitization having been effected, the block of acreage should be continued intact regardless of a dry hole.

The report of the committee closes with the following recommendation:

That the general board of directors of the Mid-Continent Oil and Gas Association be asked to endorse the complete report and commend unitization to the industry as a whole and that for this purpose the report, when approved, be submitted by the president of the general Mid-Continent Oil and Gas Association to the board of directors of the American Petroleum Institute and to the industry in general.

INVESTMENT INTEREST IN PETROLEUM ISSUES

(Continued from Page 159)

preferred, payable January 2 to stock of record December 9.

Root Refining

Root Refining Co. declared the regular quarterly dividends of 45 cents on the convertible cumulative prior preference stock and 75 cents on the convertible cumulative preferred, both payable December 1 to stock of record November 15.

Sinclair Oil

Sinclair Consolidated Oil Corp. declared the regular quarterly dividend of 50 cents, payable January 15 to stock of record December 14. The usual extra dividend of 25 cents which had been paid in the three previous quarters was omitted.

Prairie Dividends

Directors of the Prairie Pipe Line Co. declared an extra dividend of 50 cents a share on the common stock, in addition to the regular quarterly of 75 cents, both payable December 31 to stockholders of record November 30.

An extra dividend of 25 cents a share was declared by the Prairie Oil & Gas Co. payable December 31 to stock of record November 30.

Standard of Kansas

The Standard Oil Co. of Kansas has declared an extra dividend of 25 cents a share and a quarterly dividend of 50 cents a share on the capital stock payable December 16 to holders of record November 30. The last dividend, which was at the rate of $2 a share annually, was paid in June, 1924.

Union Oil

Union Oil Co. and Union Oil Association has extended the time for making final installment payment of $9.30 a share on stock subscribed for, but not yet issued under recent offering from November 15 to February 15. Final payments may be made any time between dates specified and stock will be issued as and when fully paid for.

Standard of New Jersey

The additional 546,000 shares of stock applied for listing on the New York Stock Exchange by Standard Oil Co. of New Jersey, forming part of $138,000,000 previously authorized but remaining unissued in the treasury, are to be exchanged for additional stock in the completely owned subsidiary, Standard Oil Co. of New Jersey (Delaware corporation) and used by the latter in its normal business operations.

The Standard Oil Co. of New Jersey is backing its employes with loans to prevent their being forced to relinquish their holdings of the company's stock in the present market crisis. The company's action follows a similar move announced by the Standard Oil Co. of California and by other companies and corporations.

Mexican Seaboard

For the quarter ended September 30 the Mexican Seaboard Oil Co. and the International Petroleum Co. and domestic subsidiaries report a profit of $141,291 after interest, drilling expenses, depletion and other charges, against a net loss of $11,456 before depletion in the preceding quarter and a net loss of $159,226 in the third quarter last year.

Northern Pipe Line

Northern Pipe Line Co. declared regular quarterly dividend of $2, payable January 2 to stock of record December 16.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

June 8	58.37	Aug. 31	60.90
June 14	57.76	Sept. 7	59.16
June 21	56.76	Sept. 14	60.40
June 28	56.70	Sept. 21	57.93
July 5	56.52	Sept. 28	58.63
July 12	55.69	Oct. 5	57.00
July 19	56.83	Oct. 12	59.75
July 26	55.62	Oct. 19	58.70
Aug. 3	55.09	Oct. 26	54.59
Aug. 10	54.15	Oct. 31	42.29
Aug. 17	60.32	Nov. 8	48.31
Aug. 24	60.61	Nov. 15	47.61

ORIFICE METERS SHOULD BE TESTED FREQUENTLY

(Continued from Page 151)

tions are used the meter lines are connected directly to the orifice flange.

If 2½ and 8 connections are used the high-pressure side of the meter is connected 2½ times the diameter of the pipe upstream, the low pressure connection being made 8 times the diameter of the pipe downstream. This difference in the method of connecting the meter to the line will make a difference in computing charts of approximately 1 per cent on the smaller sizes of orifices up to 33 per cent with the larger sizes. Meters with flange connections giving higher readings therefore necessitate larger coefficients for the 2½ and 8 connections than for flange connected meters. When 2½ and 8 connections are used, the upstream pressure is recorded and the downstream pressure is recorded when flange connections are used. Flanges should be installed as far away from compressor pumps and regulators as possible and meter lines should be as short between the flange and meter as possible to assure accurate measurement. Long lines usually give low readings.

Installation Procedure

An orifice flange union should be screwed into the line with a straight pipe the same size as the orifice flange and at least 16 times the diameter of the pipe each side of the flange without any fittings. The flange can be installed at any angle but care should be taken that the meter connection outlets are in such a position that dirt, water or other foreign substances that are carried along the line with the gas or liquid will not settle in them.

The orifice plate should be installed so that the data on the handle can be easily read.

Testing Meters

The orifice meter is one of the simplest methods of measuring gas or liquids but to get best results intelligent care and frequent tests should be made on the meter to be sure that it is working properly. There is no definite time interval for making these tests as the conditions surrounding meters vary so widely. It can readily be seen that a meter measuring wet dirty gas should be tested more often than a meter handling dry clean gas.

The tests on a meter are usually made with an ordinary mercury U gauge, this being connected to the high or low side of the meter, depending on the service the meter is being used for; that is, pressure or vacuum. The opposite side of the meter to which the U gauge is attached is opened to the atmosphere; then the valve in the line leading to the side of the meter to which the U gauge is attached is opened slightly, provision being made in this line to bleed to the atmosphere. The pressure or vacuum on the line is used to establish a differential reading simultaneously on the recorder and the U gauge. The recorder and U gauge should agree at all points throughout the range of the recorder.

Care should be taken to allow time for recorder to balance with the U gauge as the U gauge moves very quickly and the recorders are so constructed that they have a dampened action. If a recorder is to be checked very accurately a water column of sufficient range should be used as with the magnified or larger scale of the water column much more accurate readings can be made.

We will enumerate some of the troubles which are found when meters are tested and the method of correcting them. First they are found to be fast or slow, that is, the reading on the recorder will either gradually lag behind or gradually increase above the U gauge reading. This can usually be corrected by lengthening or shortening the lever which connects the float to the pen arm shaft or possibly the pen arm has been sprung so that the pen doesn't follow the hour lines between the 0 and maximum range line of the meter. This usually causes the meter to gain and can be corrected by making the meter arc properly.

Again the pen will move in steps. This is usually caused by a sticking shaft in the stuffing box and can be corrected by changing the stuffing box and shaft if it is badly corroded or by clearing same.

Sometimes it is found that a meter is reading too high or too low and apparently the meter is in perfect adjustment. When this happens it is usually found that the meter lines are leaking or have some foreign substance in them.

UNIT DEVELOPMENT DELAYED IN VAN POOL, VAN ZANDT COUNTY

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 18.—The status of the three wells now drilling in the Van Pool, Van Zandt County, are as follows: Pure Oil Co.'s No. 1 Thompson, the south offset to the discovery well, is drilling below 500 feet in shale; Shell Petroleum Corp.'s No. 1 Tunnell is cementing 10-inch casing at 279 feet and its No. 2 is cementing 10-inch casing at 297 feet.

The first wildcat test to be located in the area, about 6 miles to the east in Smith County, Kimbrough and others' or East Texas Oil Corp.'s No. 1 Kadone in the John McFadden Survey, has been shut down at 180 feet for two weeks.

To the south in Anderson County, Roese† and Pendleton have made a location 200 feet from the south and west of the E half of the Roe-Penn Royalty Co.'s 200-acre tract, formerly W. L. Moody estate land in the J. Welch Survey. This area was core drilled before location, and as much core drilling is being done all over this portion of the new territory, it looks as if tests would only be located after core drills had proven a sector as possible producing area.

Companies and operators continue to block acreage, and checkerboard the various counties surrounding Van Zandt County, and several other wildcats have been rumored, but so far no definite locations have been announced. Land titles and vacancies begin to prove disagreeable in this district as in other parts of Texas, and the companies and operators will be greatly relieved if the committee of ten to be appointed by the president of the Texas division of the Mid-Continent Oil and Gas Association can meet with the legislature and bring about some definite method of overcoming the many disagreements and controversies that often arise by vacancy strips being declared.

Unit Development

As yet ratification of the unit development plan for the Van Pool has not been made, and the companies having offset acreage to the discovery are merely "marking time" waiting for one or two of the companies to agree to the proposed plan of development. Possibly ratification or denunciation of the plan will be made this week, and all interested in the immediate area around the discovery well can then decide as to how to act, individually or collectively.

The 10-inch line from the pool to Chandler has been welded and ready for burying, the rack will soon be completed and oil ready to be started on its way to Chandler thence by way of tank cars to Smith's Bluff where the Pure Oil Co. has a refinery.

More companies are moving geological and instrument parties to this part of Texas, and several more offices have been opened in Tyler, Tex. It looks as if Tyler would be headquarters for most of the land and geological offices, while Grand Saline and Van would get the supply houses and some of the production department offices, although if the unit development plan is adopted, this will leave only the production department of the Pure Oil Co. to carry on the work for the other companies, and this department is already located at the company's camp west of the discovery.

Bass and Dillard of Wichita Falls and Carl Short of Dallas are the contractors drilling the three wells offsetting the discovery. These are all rotary rigs.

Anderson County

On the north side of Boggy Creek, Anderson County, Magnolia Petroleum Co. has abandoned its No. 1 Williams with drill stem stuck in chalk at 3,915 feet. On the southeast side of the dome, so far the only producing area, Humble Oil & Refining Co.'s No. 2 Gauger is drilling chalk at 3,150 feet; No. 3-A Jones is drilling chalk at 2,760 feet; No. 3 Tome Jones, Jr., is in shell and boulders at 1,865 feet; No. 1-B Todd, shale and boulders, 1,045 feet, and No. 3-B Elliott & Clark (Cherokee County), chalk, 3,439 feet.

Humble Oil & Refining Co.'s No. 1 Birdwell on the Posey Saline, Anderson County, and to the southeast of Boggy Creek, is drilling shale at 2,020 feet.

In Falls County, Gruver and associates' No. 1 Westbrook is testing the Buda lime at 927 feet after plugging back from 1,270 feet where it tested salt water. Haley & Young's No. 1 Knight, Freestone County, at latest report also was bailing to test at 4,806 feet. It was showing some gas.

Haskell and associates' No. 1 Strange at Currie, Limestone County, is drilling chalk at 2,802 feet. C. F. Lytle's No. 2 Thompson, Mexia deep test, is waiting cement to set to test an oil showing in sandy lime at 4,320-40 feet, bottom of hole being 4,345 feet. Why Not Oil Co.'s No. 3 Rhea, a Woodbine test at Mexia, is spudding.

In Robertson County, Killiam & Phillips have spudded in on their wildcat, No. 1 Scramalde. Magnolia Petroleum Co.'s No. 1 Duran, Lollar Survey, Rusk County, is drilling shale at 3,781 feet.

Daily Average Production

Daily average production for East Central Texas the past week was:

Boggy Creek	3,277
Cedar Creek	75
Currie	401
Hill County	53
Mexia	4,941
Minerva	600
Nigger Creek	230
Powell	6,772
Richland	320
Thrall	35
Van	260
Wortham	895
Total	17,859
Week ending November 9	18,114
Decrease	255

SHARP REDUCTIONS IN SEMINOLE GASOLINE

(Continued from Page 151)

plant in the East Earlsboro area its total production is less than it was a month ago due to the curtailment plan. Its latest plant, which is the oill absorption type, has a capacity of 30,000 gallons but at present is only making 12,000 gallons daily. This plant is located in an area where the curtailment is on a 40 per cent basis. More wells are being drilled on leases contracted by the company and it is expected that additional gas supplies will be available.

Proration to Continue

It is practically certain that there will be no large increase in Greater Seminole area at least until the first of the year because the curtailment agreements extend to that time. It is probable at that time that a new agreement among the producers will continue the proration over the first 30 to 60 days of the new year.

SUIT ON PERMIT ORDER

WASHINGTON, D. C., Nov. 16.—The right of the Secretary of the Interior to refuse permits to prospect for oil and gas on the public domain was today disputed by Roy G. Barton, whose petition for a writ of mandamus was filed in the Supreme Court of the District of Columbia.

BAIN REVIEWS THE SITUATION IN COLOMBIA

(Continued from Page 46)

civilization of the North Americans and intermingled with it is the Castillian blood of their foreign ancestors who were adventurers of the boldest type, and back of it all at this time is the higher education which has been their's because their work in lines of commercial pursuits has long been accomplished and they have had the leisure and inclination to study the higher arts.

So the attitude of the Colombian people toward the foreign investor is not drastically nationalistic, but they would have been truly backward and untrue to their best interest if they had overlooked what has happened in some instances to their neighbors who have permitted their natural resources to be exploited by foreigners working under concessions that were perhaps too hastily written and loosely enforced.

Therefore the government of Colombia wishes to be fair to everyone concerned. They know they must draw upon outside capital and know that that money would not be invested there without reasonable returns. And they were willing to have the foreign money make a goodly income out of its exploitation of Colombian resources, and therefore they called together men from four oil-producing countries who were peculiarly fitted by training and past experience to advise with them on these problems of new laws.

Best to Watch and Wait

The spirit was, and still is, manifested in this action and if the oil industry of this country has had occasion to feel alarm about the possible provisions of the new laws it might be well to wait before we criticize too severely, for as a matter of fact it is not definitely known at this time just what the present status of legislative action is in Colombia. Rumors are plentiful and they take every form, and like many other things observed in that southern country are often seen only through the eyes and wishes of the observer and without regard to the feelings of the people who are most concerned in the development of their country—the native Colombians.

In this issue of The Oil and Gas Journal on page 76 will be found an article prepared by Julio Corredor Latorre, minister of foreign affairs for Colombia to Mexico and now residing in Mexico City. Doctor Latorre has made a good plea for his country's actions and Doctor Bain read this article before publication, and in the main it is quite in accordance with his views as expressed when a member of the commission which drafted the recommendations for the new laws.

However, Doctor Bain explains that after they had made their technical recommendations to the Minister of Industry for the conditions that they considered best and most equitable for all concerned it was necessary that those recommendations be turned over to their lawyers and lawmakers for the actual writing of the proposed enactments.

In this process of interpreting technical recommendations into legal phraseology there may have been a few errors made, but they are not of great significance and too much stress has been placed upon what might happen under a poorly managed governmental department rather than upon what the wording of the proposed laws really says.

In other words, it must be granted at the very start that the people and government of Colombia are acting strictly in good faith in framing these new laws. They made a mistake in their old laws and were men enough to admit it and therefore they called upon the very best talent available to guide them in making these new ones, and that in itself shows most definitely that the spirit to do what is right is there.

However, if we read these proposed laws and then start to interpret them in the light of what might happen if the Colombians set up a department managed by men who were unfair to their coun-

try and to the foreign investor we are taking the wrong premises and nothing can be right, as we would then see it.

Nothing Unusual

We might find fault with the clause that set forth the requirement that "technical plans" must be approved by the department handling these matters before drilling could be started. There is nothing about this that is extraordinary for in this and every other country where government lands are leased to private parties, regulations of a like nature are specified, primarily because the lessee is working upon government domain and to protect the people's rights in that property it is only fair and just that some plan be submitted and approved before the work is started. And, furthermore, every well organized business concern today is working upon very definite and well laid plans and why should not any government ask to see those plans and have the right to approve them so that all lessees will work under practically the same conditions. It really safeguards the company owning the concessions as much against unfair practices by his neighboring companies, as it does the government against poor practices in developing their lands and public resources.

Doctor Bain counsels more consideration for the proposed new Colombian laws governing the development of the petroleum resources of that country, and a closer and more frank study of the conditions that actually exist there and the characteristics of the people who make up its population, for they have had some rather bitter experiences with foreign concessionaries and know what their sister republics in South America have suffered from bad practices both from within and without their boundaries. The governmental departments, wishing to avoid as many of these troubles as possible, took what was the only logical course, and called in foreign experts for advice.

Just what will be the final value of that advice depends largely upon the manner in which the phrasing of the final laws as enacted will be as written by the lawyers and legislatures, but it is felt that their intent and purport is with the friendliest of feeling towards outsiders and when the law is enacted it is safe to predict that if it is found that it has clauses that actually work hardships upon foreign investors every effort will be made by the Colombian officials to rectify those details and make everything harmonious for all concerned.

In reading the laws do not try to read into them what might happen under poor administration of officials of a country that might be subject to revolt at any time, but rather considering them as laws to be enforced by the people who have been selfgoverning for over 40 years without internal strife other than that which is common to every republic where political parties disagree, and which have always been settled in a most satisfactory manner by ballot and not bullet. Briefly do not class Colombia with some other Latin American republics that have been most unstable in their government in the past and while in the hands of the renegades the foreigners have been relieved of their possessions and accumulation by confiscation, for Colombia by past history and tradition and by the present high standard of its people in arts and education is not to be classed with such regrettable actions of certain elements in other Latin American countries, but rather to be placed alongside the modern countries of the balance of the world who strive for peace and justice to all and who feel that the right to live and let live is due to everyone within the boundaries of their country.

HERO AWARDS TO OIL MEN

The Carnegie Hero Fund Commission has awarded R. I. Medcalf, a driller, a bronze medal for saving the life of James S. Moore, a derrick man, in the Earlsboro Pool, in August, 1927.

Mr. Moore was up 77 feet in a rig when he fell. Medcalf not only stepped out and caught the falling man in his arms, but deflected Moore in such a way that instead of Moore's head striking a timber that was directly in line, Moore hit it feet first. One leg was shattered, but his life was saved. Mr. Medcalf suffered sprained wrists and later felt the effects of the terrific wrench to the muscles of his back. Today he is drilling in the Oklahoma City Field.

A posthumous award of a bronze medal and $80 a month benefit to the widow of C. E. Sanders, refinery worker of West Tulsa, was also awarded in appreciation of Mr. Sander's efforts to rescue a man, his wife and five daughters when their boat overturned in a little lake. Only the girl and her father were saved.

OKLAHOMA-KANSAS CHAPTERS DISCUSS PRODUCTION PROBLEMS

Regular meetings of the Seminole, Drumright and Tonkawa, Okla., chapters of the American Petroleum Institute division of Development and Production Engineering were held on November 15, 19 and 20, respectively.

Ray M. Collins, oil umpire for the State of Oklahoma, was the principal speaker at the Seminole meeting and made a strong plea for a stringent curtailment of production in all flush pools and made reference to the success of the shut-in movement in the Oklahoma City Pool as a good example of what can be accomplished by concerted action of the producers in an area where open flush production conditions would have caused serious overproduction.

Mr. Collins' talk was well received by the audience of about 50 men made up of superintendents, farm bosses and production engineers of the Seminole area, with C. V. Sidwell of the Amerada Petroleum Corp. presiding.

At the Drumright meeting held in the new Community Hall in the old high school building, there was also a good attendance of field men from that district who viewed the motion pictures of oil field operations and listened to the discussion on pulling rods and tubing and cleaning out old wells with much interest.

Chairman Watson Bettis presided and Secretary Ernie L. Bell of the Shaffer Oil & Refining Co. carried on in his usual snappy style. The entertainment that he provided for the crowd was greatly appreciated.

The Tonkawa meeting covered the subject of "Repressuring" and W. H. Collins, petroleum engineer for the Shell Petroleum Corp., gave a most interesting outline of the work that had been done and pointed to further applications and improvements. The discussion that followed was participated in by a good portion of the members present and brought out much valuable information on this subject. Chairman C. M. Copeland presided.

These meetings are typical of those being held in the Oklahoma-Kansas division of the A.P.I. and are certainly bringing out a great deal of valuable field data as well as imparting to the field men many of the important details of the work done by the various committees on standardization of the Institute.

PALEONTOLOGISTS MEET AT TEXAS UNIVERSITY

AUSTIN, Tex., Nov. 18.—When the geologists arrived in Austin to attend the fall meeting of the Society of Economic Paleontologists and Mineralogists at the University of Texas, November 16 and 17, they found a variety of interesting events arranged for their entertainment.

The program began Friday evening with a joint meeting with the Southwestern Geological Society. Dr. W. M. Winton, head of the geology and biology department, Texas Christian University, delivered the principal address on "Recent Advances in Paleontology," illustrated with lantern slides and diagrams. Robert H. Cuyler of the geology department of the University of Texas discussed the geologic section in Travis County and described the field trip which took place Saturday morning to points of geologic interest around Austin, led by Prof. F. M. Bullard and Robert H. Cuyler of the university faculty.

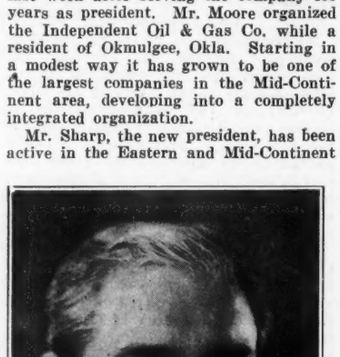
At the banquet at the University Commons, Dr. F. W. Simonds, professor of geology, presided. Speakers included Dr. J. A. Udden, director of the Bureau of Economic Geology; Dr. H. Y. Benedict, president of the University of Texas; Dr. G. E. Condra, state geologist of Nebraska; Dr. R. C. Moore, state geologist of Kansas and head of the geology department of the University of Kansas; Dr. Marcus A. Hanna, president of the Society of Economic Paleontologists; Dr. F. L. Whitney, professor of paleontology, University of Texas, and Dr. E. H. Sellards, associate director of the Bureau of Economic Geology.

Following the meeting there were three field excursions: One to Eagle Pass and Del Rio, led by W. S. Adkins of the Bureau of Economic Geology; one through the Glen Rose section of central Texas, led by Professor Whitney; and one across the Llano Mountain section to San Saba, led by Dr. E. H. Sellards and F. B. Plummer.

R. C. SHARP SUCCEEDS E. H. MOORE, RETIRED

R. C. Sharp, of Tulsa, nationally known oil and gas man, has been elected president of the Independent Oil & Gas Co., succeeding E. H. Moore, who resigned last week after serving the company for years as president. Mr. Moore organized the Independent Oil & Gas Co. while a resident of Okmulgee, Okla. Starting in a modest way it has grown to be one of the largest companies in the Mid-Continent area, developing into a completely integrated organization.

Mr. Sharp, the new president, has been active in the Eastern and Mid-Continent



R. C. Sharp

fields since his early manhood. For years he was president of the Oklahoma Natural Gas Co. and more recently president of the Southern Natural Gas Corp., which position he has resigned.

E. H. Moore, the retiring president, retains a large stock interest in the company and will continue as a member of the board of directors. Mr. Moore organized the Independent Oil & Gas Co. in 1919. In 1927 it was merged with the Philmack Oil Co., headed by Waite Phillips, who became chairman of the board, Mr. Moore continuing as president.

The officers and directors of the Independent Oil & Gas Co. are as follows: Waite Phillips, chairman of the board; R. C. Sharp, president; R. B. Pringle, vice president; Villard Martin, vice president; Gillette Hill, vice president; J. Donald Duncan, vice president; John E. Curran, secretary; R. M. Riggins, treasurer; M. H. Massey, assistant secretary-treasurer, and John F. Clancy, assistant secretary. Directors: Messrs. Phillips, Sharp, Pringle, Martin, Hill, Curran, Riggins, and Duncan; E. H. Moore, A. R. Jones, E. W. Goebel, J. M. Wadsworth, Don M. Kelley, E. P. Currier and Henry Lockhart, Jr.

E. H. Moore

REDUCE PRICE FOR OIL CONTAINING GASOLINES

The Empire Pipe Line Co., which is the crude oil purchasing and pipe line transportation subsidiary of the Empire Oil & Refining Co., announced a reduction in prices paid for the highest gravity crude oil obtained in the Oklahoma City Pool effective November 14. According to the new schedule the top price paid will be for crude oil of 40 degrees gravity or above for which a price of $1.65 has been posted. Previously the top price was $1.85 for crude oil of 44 degrees gravity or above.

A few wells in the field notably the No. 1 Kinter of the Sinclair Oil & Gas Co., are producing a crude oil of better than 50 degrees gravity. This crude oil contains considerable unstabilized natural gasoline and pipe line companies found that evaporation losses are heavy in transporting this material to the refineries. The Sinclair well last week was producing around 500 bbls. daily of this fluid.

OIL MEN FLY TO HUNT DUCKS

Southern California oil men's duck hunting expeditions into the marshes to the north are becoming more frequent with the increased use of the airplane in the industry. Rarely a weekend passes without one or more planes leave Los Angeles for hunts at northern clubs. One such party, which returned with their plane loaded with both ducks and geese, included M. L. Boroughs, superintendent of production; Robert Ketchem, purchasing agent, and William Linden, of the General Petroleum; C. C. Kifer, district superintendent of the Shell Oil Co.; M. G. Brumbly, manager of National Tool & Metals, Inc., and J. C. Wright, manager of Wiemann-Kammerer-Wright, Inc. They were guests of W. A. Trout, vice president and general manager of the Emsco Derrick & Equipment Co. The trip to Arbuckle, Calif., was made in the Emsco Derrick & Equipment Co.'s trimotored Emsco Challenger.

BUREAU OF STANDARDS REPORTS ON RECLAIMING CRANKCASE OILS

Report of Bureau of Standards

Used oils, drained from the crankcase of automobiles, and similar waste oils may be refined and made at least as good as new by appropriate treatment. The methods employed are various, but in general the objects to be accomplished are:

(a) To remove foreign matter such as metal particles and road dust.

(b) To remove the diluent or unburned portion of the fuel.

(c) To decolorize or bleach the oil so that it will be no darker than the original new oil.

The rerefining industry has developed in two ways. In various large cities such as Toledo, Kansas City and Los Angeles, used oil is collected from garages and filling stations and the resulting rerefined oil is sold commercially. On the other hand, a variety of forms of apparatus, of various degrees of simplicity and effectiveness, are available for rerefining oils in small batches. This makes it possible for owners of garages, fleets of automobiles or even individual car owners to rerefine oils for their own use.

Thus there are two distinct problems in rerefining oil: Either to obtain an oil which is readily salable to the public in general, or for an individual car owner to obtain an oil which he is satisfied is usable for his own purposes.

Obviously all gritty material must be removed to make an oil usable, and, except in cases of prediluted oils, the diluent must be removed to bring the viscosity back to its original value, i.e., to bring the oil back to its original grade. The need of decolorizing the oil, provided it is not turbid, is less obvious, and rightly or wrongly, many types of rerefining apparatus are in use for producing oils which are very dark in color, and which perhaps are usable but are certainly not salable. The question to be decided in each case is whether the increased cost of repairs will or will not be greater than a saving in the cost of rerefining. Turbid oil might conceal gritty sediment.

Bryte-Hanke Process

In the Bryte-Hanke process the used oil is treated with certain chemicals (patent applied for) before putting it into the still, in order to precipitate the solid impurities. Materials commonly used in other processes for this purpose are sodium silicate, trisodium phosphate and various washing powders.

Some form of heat is necessary to remove the diluent as it cannot be removed by centrifuging or by settling. In tests of the Bryte-Hanke process at the Bureau of Standards, the still was heated by gas, but in commercial operation the diluent is used as a fuel, thus reducing the cost of heating.

Care must be taken in distilling oil to avoid "cracking" as this causes discoloration. Cracking or disintegration of the oil is commonly avoided in commercial refining of crude petroleum, and sometimes also in rerefining used oil, by bubbling steam through the oil in the still. In the Bryte-Hanke process cracking is prevented by the use of a very high vacuum, a method less frequently employed in refining crude petroleum.

In many processes of rerefining, only the diluent is distilled off, and lubricating oils of different viscosities are not readily obtained except by blending. In the Bryte-Hanke process the lubricating oil (except for a small amount of still residue which may be used for gear lubrication) is distilled off, and thus various grades of oil, such as light, medium and heavy, may be obtained by regulation of temperatures.

Bureau of Standards Tests

The still used at the Bureau of Standards was of small capacity and built for demonstration purposes only, but there is no reason to believe that the results obtained on a commercial scale would be materially different.

The oil is heated from 160 degrees to 180 degrees Fahrenheit before the chemicals are added, and heating is continued to drive off all moisture so that danger of foaming the still is avoided. After the treated oil has stood overnight, the scum which forms on the surface is removed. The oil is then poured into the still, taking care that the sediment of precipitate is separated from the oil. The separation is not complete, and most of the oil lost in the process is due to that remaining in the sediment. Ordinarily 3 pints of oil are treated to obtain 2½ pints to put in the still. Table 1 shows the approximate yield from two runs. Oil No. 1 was obtained from the sewer department and oil No. 2 from the municipal garage, District of Columbia.

TABLE 1—VOLUME PUT IN STILL AND RECOVERED

	Oil No. 1 (ml)	Oil No. 2 (ml)
Put in still	1,065	1,180
Diluent	85	60
Light distillate	310	290
Medium distillate	240	230
Heavy distillate	225	350
Still residue	100	75
Total recovered	960	1,005
Per cent recovered	90	85

Distillation Operation

About two hours is required for a distillation, the temperature being gradually increased. For oil No. 1 the final temperature was 667 degrees and for oil No. 2 was 680 degrees Fahrenheit. The air pump is kept running, after turning off the heat, for about half an hour or until the heavy distillate has stopped coming off.

In commercial operation a longer time is required to heat the larger volume of oil. A separate condenser is used for the diluent to prevent the flash point of the light distillate from being lowered by the diluent. This also prevents the diluent from being contaminated by the heavy oil remaining in the piping from a previous run. In the demonstration apparatus only one condenser was used so that the flash point of the light distillate was inevitably lowered.

Table 2 gives results of examination of products obtained from oil No. 1 while similar results from products of oil No. 2 are given in Table 3. The light, medium and heavy distillates, as well as the new oils, all passed the corrosion test.

TABLE 2—OIL FROM SEWER DEPARTMENT

	New	Used	Treated	Distillates Light	Medium	Heavy
Viscosity, Saybolt Universal, 100 degrees F.	495	265	250	115	575	1,710
Flash Point, degrees Fahrenheit	370	...	...	280	395	420
Union color, No.	5	...	...	3	3½	4
Pour point, degrees Fahrenheit	B20	...	...	B20	B20	40
Neutralization No.	0.05	...	...	0.30	0.30	0.18
Carbon residue, per cent	0.12	...	...	0.03	0.04	0.13
Ash, per cent	...	0.11	nil	...	...	...
Dilution, per cent	...	12.4	12.4	...	...	...

TABLE 3—OIL NO. 2 FROM MUNICIPAL GARAGE

Viscosity, Saybolt Universal, 100 degrees F.	407	290	320	120	437	1,314
Flash point, degrees Fahrenheit	430	...	...	375	400	440
Union color, No.	8	...	...	8	3½	4½
Pour point, degrees Fahrenheit	45	...	...	B20	B20	25
Neutralization No.	0.10	...	...	0.09	0.27	0.18
Carbon residue, per cent	0.43	...	...	0.01	0.04	0.16
Ash, per cent	...	0.40	0.02	...	...	...
Dilution, per cent	...	8.8	8.8	...	...	...

The heavy distillate of oil No. 2 had a viscosity, Saybolt Universal at 210 degrees Fahrenheit of 73 seconds. The diluents were merely subjected to a distillation test by the standard method of kerosene. The diluent from oil No. 1 showed an endpoint of 644 degrees Fahrenheit when 49 per cent had been distilled off, and a residue of 0.8 per cent. For oil No. 2 the endpoint was 687 degrees Fahrenheit, the distillate was 49.5 per cent and the residue was 0.5 per cent.

The ash from sludge formed in treating the used oils proved to consist mainly of sodium carbonate, which might result from soap contained in the used oil before treatment.

The effect of the preliminary treatment of the used oil is shown by the decrease of ash. It would be expected that the precipitation of the sediment would lower the viscosity, as shown in Table 2, but in Table 3, the viscosity is apparently increased by the treatment. This may be due to the presence of unprecipitated sludge in the sample of treated oil used in determining viscosity.

The still residue of oils No. 1 and No. 2 were examined in order to determine their value as lubricants. The former has a viscosity of 616 seconds, Saybolt Furol at 122 degrees Fahrenheit, with 1.6 per cent of ash, while the latter has a viscosity of 406 seconds and 0.98 per cent of ash. As the ash consisted mainly of sodium carbonate, the amount of ash is not necessarily objectionable. The viscosities are higher than for any oil listed in government specifications but the residue might be used for gear lubrication.

Tests on the three distillates were compared with the government specifications for automobile oils. The light distillates of both oil No. 1 and No. 2 are of lower viscosity than the automobile oil of extra light grade in specifications, and in the case of light distillate of oil No. 1 the flashpoint is lower than the specified temperature of 315 degrees Fahrenheit. This low flash point, however, may be attributed to contamination by the diluent, as previously explained. The medium and heavy distillates meet the requirements, especially well in regard to color and carbon residue, even for oils of considerable higher viscosity. The neutralization number is in no case higher than 0.30, the highest value permitted. Thus with the exception of the low flash point in one distillate, which is readily explained, all distillates pass the even more stringent specifications for oils of higher viscosity.

In accordance with the Bureau of Standards regulation, this report is not to be used in full or in part for advertising or sales promotion purposes.

MINOR CHANGES IN OKLAHOMA MARKET

(Continued from Page 40)

manufacturers are in a position to prevent wide fluctuations in their market during the winter months. The smaller manufacturers and a few of the major operators have practically no storage facilities. These manufacturers are compelled to move their output currently and this in the past has often resulted in overnight fluctuations with disaster to the sellers when the supply was excessive.

The storage facilities have provided a buffer which should protect the seller from prices which are below the cost of production and at the same time the buyer has protection in regard to excessive prices. This is an accomplishment which has long been the aim of the constructive factors in the natural gasoline branch of the industry and it has support of everyone who hopes to see greater price stabilization in all products used as motor fuels.

Production Less

Relative to the immediate outlook for natural gasoline the effect of the crude oil curtailment programs in Oklahoma and California merits consideration. As explained on page 151 of this issue these curtailment programs are reducing the supplies of casinghead gas and this is directly reflected in the output of finished gasoline.

No accurate figure is available at this time giving the reduction in California natural gasoline output but in the Greater Seminole area of Oklahoma the reduction amounts to approximately 200,000 gallons daily. These curtailment programs are to continue indefinitely and due to that fact it seems certain that the natural gasoline situation will be aided by a lessened output through a period in which the demand also slumps.

Due to the fact that substantial quantities of California natural gasoline have been brought around to the East Coast during the past few months any decline in West Coast output will effect the market generally. In the Oklahoma City Pool which is the only large area of new development for the gasoline manufacturer at this time, the crude oil curtailment is to be drastic. Due to this condition it is not believed that any attempt will be made to secure a large production of natural gasoline until operating restrictions are removed.

Gasoline and Naphtha

Refiners who are quoting 7½ cents to the trade for U. S. Motor gasoline are reporting very few sales. As explained previously there is enough of this material available at lower prices to take care of the spot demand. Sales to the trade as low at 6¾ cents are commonly reported and resale material at 6⅝ cents is being sold in Oklahoma.

There is a strong agitation in Oklahoma and other Mid-Continent refining groups to bring about a curtailment of plant operations with the view of strengthening the gasoline market. It is felt that a general curtailment of 10 to 15 per cent would bring about a situation in which there would be a ready demand for the output at favorable prices.

At present there is sufficient material being forced on the market from day to day to prevent any price recovery despite the improved crude oil situation. The higher gravity gasolines are stronger than the lower gravity domestic grades but the situation in regard to all grades could be improved. Blenders in Oklahoma report a good business and this is reflected in a fair naphtha demand at refineries.

Kerosene and Distillate

Although an occasional sale of 41-43 water white kerosene is reported under 4½ cents the latter price appears to be the bottom for specification material in domestic shipments. The prices range up to 5 cents. The output of several refineries has increased and they are more anxious to move kerosene than any other product.

The improvement in the furnace oil demand previously mentioned has not advanced prices. Most of the trade do not expect higher prices at this time and will be satisfied if further declines can be prevented.

Fuel Oil and Gas Oil

Fuel oil prices range from 65 cents up. Many refiners report sales of low gravity grades at 70 and 75 cents. Some of the broker buyers are short in their November sales and have been forced to buy regardless of price. The high gravity low cold test grades are especially strong and at least one large order was placed in Oklahoma last week.

Gas oil prices are fairly steady following the decline of last week. Offers under 2¾ cents for industrial grades failed to find Oklahoma takers. A few refiners continue to sell a low cold test, straw gas oil at 3¼ cents.

Lubricants and Wax

Prices on lubricating oils and wax are unchanged. Buyers are predicting that bright stock which has been very tight in Oklahoma for several months will be more freely offered next month. The production of bright stocks has increased and the buyers are not as active. The steam refined market continues weak. Sales of 124-126 wax were made at 3 cents during the past week.

TO COLLECT DATA

The Anglo-Persian Oil Co., Ltd., is establishing an office in New York City for the purpose of collecting technical data on operations in the various departments of the petroleum industry in this country. It is understood that no attempt will be made at this time to acquire rights or title to lands or property in this country by the Anglo-Persian Oil Co., but it is greatly interested in gathering data on the best practices as now in effect here and is taking this means of doing it.

Old Timer Says—

"If you want to prevent the tubing from settling use—

"PARMACO" Combination WALL and ANCHOR PACKERS"

Get a "Parmaco" *and be safe.*

Write for Catalog.

PARKERSBURG MACHINE CO.
PARKERSBURG, W. VA.

"The House of Courteous Service"

Late Fields

(Continued from Page 52)

County, had a showing of gas, estimated at 2,000,000 feet, from the horizon at 5,603-12 feet, in shale. The test was drilling deeper at 5,668 feet, on November 18. It is the second showing. The first at 5,405-15 feet had a show of oil.

Sinclair Oil & Gas Co.'s No. 6 Nichols, SE cor. NE NW Section 19-9-6, in the East Earlsboro Pool, made 5,685 bbls. from Wilcox sand at 4,185-4,210 feet. It has been shut in for the proration period.

Gypsy Oil Co.'s No. 1 Bilderbeck, NW SE SE SE Section 27-28-7w, Grant County, a wildcat, cored from 4,065-78 feet, in shale with nothing showing. It cored a sand at 4,058-65 feet with a showing of oil. The test was drilling deeper at 4,085 feet on November 19.

Mid-Kansas Oil & Gas Co.'s No. 4 Fortson, NE cor. NW NE Section 24-11-3w, Oklahoma County, made 2,592 bbls. in 19 hours and 3,240 bbls. in 24 hours. This new well found its production in Arbuckle lime at 6,188-6,571 feet.

Tom Slick Oil Co.'s No. 1 Martin, NW cor. Section 13-13-1w, Oklahoma County, a wildcat test near Jones, cored a dry sand at 6,127-35 feet. The drill pipe is now stuck at a total depth of 6,135 feet.

Indian Territory Illuminating Oil Co.'s No. 1 Emerson Joyce, NE cor. Section 25-11-3w, Oklhoma County, was swabbing water at a total depth of 6,664 feet, and was unable to lower the fluid. Water is standing 5,100 feet in the hole.

Prairie Oil & Gas Co. and others' No. 1 Sudick, C NE NE Section 8-10-2w, Cleveland County, was drilling at 7,435 feet. It is the deepest drilling test in the State.

Mid-Kansas Oil & Gas Co.'s No. 1 Browning, SW cor. NW, Section 18-11-2w, Oklahoma County, made 3,987 bbls. in seven hours, from the Arbuckle lime at 6,058-6,552 feet. It is the most northeast producer in the Oklahoma City Pool at this time.

Indian Territory Illuminating Oil Co.'s No. 1 Henning, NE cor. SW SE, Section 24-11-3w, made 1,436 bbls. of oil and 5,198 bbls. of water on the gauge of November 19, from the Arbuckle lime at 6,205-6,609 feet. Same company's No. 1 Foster, C NE SW, Section 24-11-3w, has 5,000 feet of water in the hole from the Arbuckle lime at 6,248-6,680 feet. Same company's No. 2 S. Bodine, SE NW NW, Section 30-11-2w, made 48 bbls. of which 90 per cent was emulsion, from a total depth of 6,205 feet.

The production in the East Earlsboro Pool shows an increase on the gauge of November 19, due to new wells being added to the pool. The gauge by companies and leases were as follows:

Company, lease—	Wells	Bbls
Amerada-Dixie, Sullivan	3	1,980
Barnsdall, Gilliam	1	131
Barnsdall, Noble	3	978
Burke-Greis, Fixico	1	1,235
Carter, Wrightsman	1	1,020
Gypsy, Noble	2	3,053
Gypsy, Payne	7	4,072
Magnolia, A. Anderson	10	3,991
Magnolia, D. W. Anderson	4	2,093
Magnolia, P. Anderson	1	Off
Magnolia, Moore	2	388
Mid-Continent, McDaniel	1	20
Minnehoma, Noe	1	1,865
Prairie, Baker	5	980
Prairie, Calkins	2	1,971
Prairie, Raitman	3	2,805
Prairie, Wisener	1	70
Shell, Hopper	2	1,288
Sinclair, Miller	1	620
Sinclair, Nichols	1	5,685
Total	52	34,175

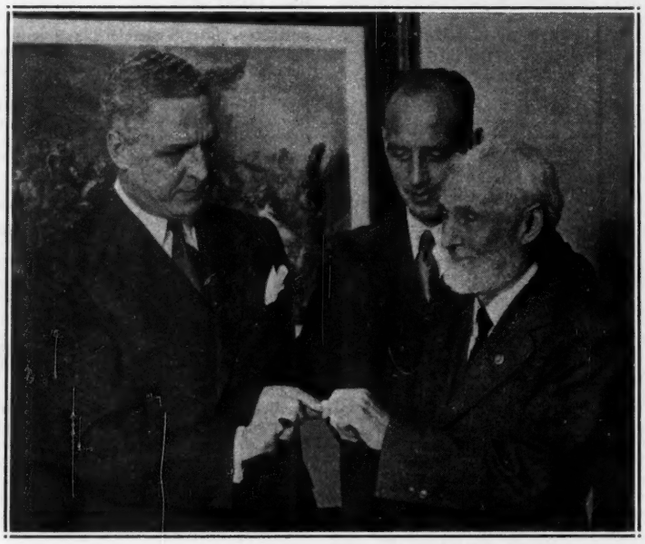
SOUTHWEST TEXAS

SAN ANTONIO, Tex., Nov. 19.—Allan Park's No. 1 Watson in southern Bexar County, 4 miles east of Somerset Field and 10 miles south of San Antonio, bailed 8 bbls. of 43.6 oil Monday night, bailing from top. The test is a few feet in the Edwards lime at 2,509 feet and will be bailed from the bottom today. It has many earmarks of opening the first Edwards lime field in Bexar County. Much of the oil bailed was from the Austin chalk.

OLDEST OIL MAN RECEIVES TWO DIMES FROM JOHN D.

When John D. Rockefeller wishes to confer on somebody a token of his esteem he hands that person a shiny new dime. So it was a double honor that came to John T. Sencabaugh, the oldest oil company employe in the world, in Cleveland, Ohio, the other day when he received two of these coins from the multimillionaire. It was Mr. Rockefeller's withdrawal from active participation in business that gave the other nonagenarian the distinction of being the world's oldest active oil man. Each is 90.

Mr. Sencabaugh has been with the Standard Oil Co. 59 years and he refused to retire on a pension. He is assistant in the claims department of the Standard Oil Co. of Ohio in Cleveland. W. T. Holliday, president of the company, paid a tribute to Mr. Sencabaugh's long and faithful service in presenting the dimes. On the card to which the dimes were attached was written: "With happy memories of the long ago when I used to see you every day at the works. John D. Rockefeller."



—P. and A. Photo.

W. T. Holliday, president, and J. Stewart Harrison, director of the Standard Oil Co. of Ohio, presenting two dimes from John D. Rockefeller to John T. Sencabaugh.

EAST EARLSBORO WILL ADOPT OKLA. CITY PLAN

Umpire Ray M. Collins, representing the Oklahoma Corporation Commission in the prorating of flush fields in Oklahoma, has notified East Earlsboro operators that they have the same rights as to shut-in time that prevail in the Oklahoma City Pool. His letter, in part, follows:

"The Oklahoma City operators' committee interpreted Paragraph 7 of the order of the Corporation Commission to mean that all drilling wells could be drilled in to the sand and one day's production allowed before taking the shut-down time, as required by the order. Your committee is following the interpretation of the Oklahoma City operators; therefore, all wells drilling in the areas under proration will be allowed to drill in and one day's production permitted before being shut in the required time, as shown on the schedule, showing shut-in time required, sent you heretofore.

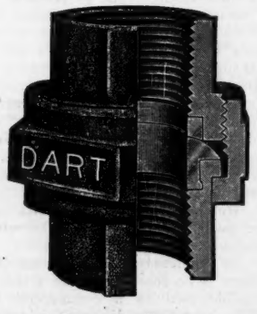
"Therefore, you may take shut-in time either at the time of cementing the casing, or when you reach the top of the sand, or your well may be completed and 24 hours' production taken therefrom. Whichever way you elect to drill your wells, you will be required to take seven days for cement to set, and the additional shut-in time as required by the schedule before your well will be put on full production, with the exception of the one day's production allowed as set out above.

"The time required in drilling in, shooting or cleaning out wells will not be considered as part of the shut-in time. In case of wells taking part of their shut-in time previous to drilling in, the combined shut-in time shall equal the required shut-in time. Records of your shut-in time should be mailed to this office."

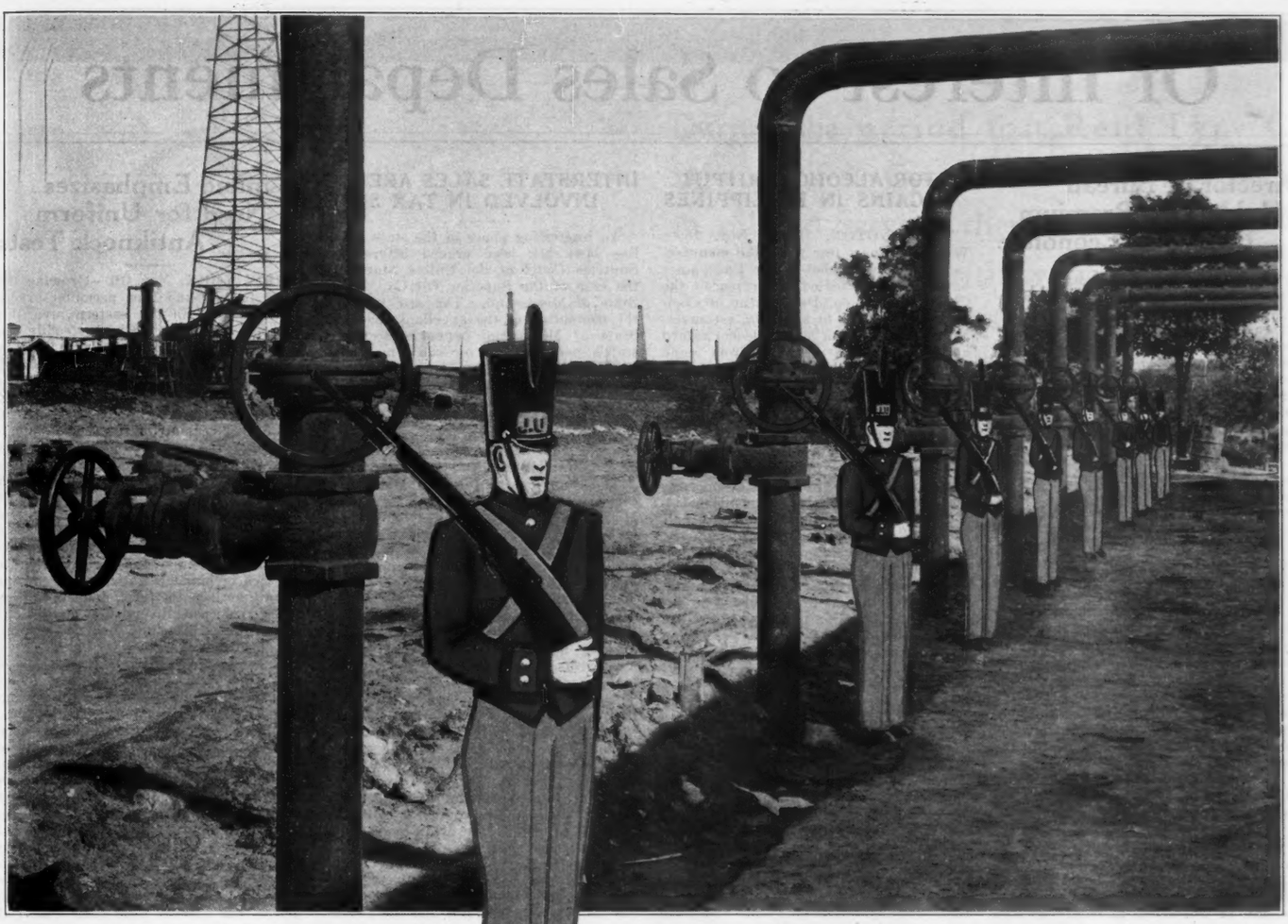
DART UNIONS and FLANGES

Two Bronze Seats

May we send you sample to try on your most troublesome line? It is absolutely free. Write today for catalogue "O."



E. M. Dart Mfg. Co., Providence, R. I.
The Fairbanks Co.,—Distributors



Jefferson Unions THE DAY AND NIGHT PATROL

To stand on guard at all times against leaks, blowouts and wasteful deterioration—that is the duty of Jefferson Unions. And like picked men, stationed as sentinels, Jefferson Unions are the pick of pipe fittings.

Jefferson Unions are manufactured from air-refined, Certified Malleable Iron, made in our own foundry. The seat rings, which are made of the best grade of brass obtainable, fit in a recess, away from the runway of the fitting. Here they are protected from abrasion and corrosion. When compressed, in the fitting, they become practically one piece with the iron, eliminating the need for gaskets. Spherical joints and play between nut and swivel end insure easier and speedier application, even when pipe stems are out of alignment. Graphite coated threads have 100% salvage value.

Style "R"
W.P. 200 Lbs.

Furnished with iron-to-iron joints, as well as brass-to-iron, at no extra cost, when specified for use in oil fields where a highly corrosive condition exists.

Handled By All Leading Oil Industry Jobbers

JEFFERSON UNION COMPANY
Lexington, Mass., U.S.A.

JEFFERSON

Of Interest to Sales Departments

Director of Bureau Holds That Premium Fuels Not Economic

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Nov. 16.—"In general, prices paid for premium gasoline are seldom justified by the results obtained," George K. Burgess, director of the Bureau of Standards, has replied to a request for information on the so-called "high test" gasoline made by the American Automobile Association it was announced today.

Doctor Burgess holds, the "high test" gasolines do not give as much mileage per gallon as the ordinary fuel in summer time. Cold weather, however, the Bureau of Standards holds, reveals advantages in "antiknock" fuels, such as easier starting and better engine performance.

Recent tests have been made at the bureau to determine the relative values of ordinary gasoline and the premium brands. The tests have shown that gravity no longer is an indication of the volatility of the fuel, despite the fact that a large amount of fluid fuel is sold today on that basis, the Bureau of Standards holds. The bureau devised apparatus to permit the grading of automobile fuels as to their performance under ordinary engine conditions.

A classification along these lines would "give the motorists some information about volatility," the bureau announces.

Antiknock Fuels

The bureau states, on the subject of "antiknock" fuels:

"In general, it should be emphasized that there is very little to be gained by the use of antiknock gasolines in cars which do not knock when ordinary gasoline is used. No increase in mileage or benefit in performance is to be expected under these conditions. On the contrary, a fuel which knocks appreciably in a given engine will give less power and less miles per gallon than one which does not knock."

Of "high test" gasolines the bureau says: "In summer weather there is practically nothing to be gained by the use of high test gasolines. In fact, one is liable to secure less mileage per gallon with the more volatile gasoline under these conditions. In cold weather the more volatile, or high test, gasolines will give appreciably easier starting and less crankcase dilution and possibly better engine performance also, particularly in the warming-up period. In general, the prices paid for premium gasolines are seldom justified by the results obtained."

The information on the subject was obtained by the district division of the A.A.A. in response to numerous requests from members.

CALIFORNIA GALLONAGE

Sales of gasoline in California which are subject to the State's 3-cent tax will total 1,230,192,000 gallons in 1929, according to an estimate of the State Board of Equalization. The tax return to the State based on a 3-cent tax will total approximately $36,000,000.

Fifty-nine distributors reporting for the third quarter of this year reported total sales of 334,418,767 gallons.

BRITISH COLUMBIA TAX

CHATHAM, Ontario, Nov. 16.—It is probable that a proposal will be presented to the British Columbia legislature to increase the provincial gasoline tax from 3 cents to 5 cents, in order to finance a more extensive roads program. The 3-cent tax will this year yield in excess of $1,000,000.

MOTOR ALCOHOL OUTPUT GAINS IN PHILIPPINES

WASHINGTON, D. C., Nov. 18.—Within the past few years the manufacture of motor alcohol in the Philippines has steadily increased, according to the Chemical Division, Department of Commerce. According to unofficial estimates, an annual output of motor alcohol valued at $5,000,000 is realized from cane molasses, a by-product of the sugar industry which formerly went to waste. It would seem that the Philippines are especially endowed with the basic raw materials for in addition to the by-product of the main industry, the nipa palm, which grows luxuriantly over vast areas of otherwise valueless swamps, is also used for the production of alcohol.

Motor alcohol retails at less than half the price of gasoline in the Philippines, and in 1928 production amounted to 13,500,000 liters, of which nearly 4,000,000 were exported to China, the chief market. It is stated that at present about 50 per cent of the available molasses is distilled into alcohol and that future production from that source will be governed by progress in the sugar industry.

CHAIN OF BULK STORAGE TERMINALS ON N. Y. CANAL

A chain of bulk storage terminals on the New York State Barge Canal is being established by the Richfield Oil Corp. of New York, a subsidiary of the Richfield Oil Co. of California.

The first unit in this chain, at Schenectady, is being rapidly brought to completion and will be in operation before the barge canal closes for the winter. The Schenectady plant will have storage capacity for 110,000 bbls. of refined petroleum products and is not only directly on the barge canal but also has railroad connections with both the New York Central and the Delaware & Hudson Railroads.

This terminal, with the exception of 100 per cent Pennsylvania lubricating oils which will come from the Richfield refinery at Clarendon, Pa., will be supplied from bulk storage from Bayonne, N. J. Schenectady will be the distributing point to all Richfield stations in east-central and northern New York. Gasoline will be shipped from this terminal during the winter by tank car, but plans call for supplying these points by tank wagon during those months when the roads are not blocked by snow.

COLLECT BACK PAYMENTS

The city of Atlanta and 40 counties in Georgia have been asked to pay approximately $300,000 due in back payments on the state gasoline tax. The payments are due under the gasoline tax which became effective September 1, 1927.

At that time the city of Atlanta and the counties concerned refused to pay the tax alleging that the tax did not apply to purchases made for public use. The Supreme Court of the State recently ruled that the tax applied to counties and cities as well as distributors of gasoline and all back payments are now due.

NEBRASKA ENDORSES CODE

At a meeting held in Omaha, Neb., last week the code of ethics as sponsored by the American Petroleum Institute was approved. Representatives of all the larger distributors in the State and officers of the Nebraska Independent Oil Men's Association attended the meeting. Commercial discounts which are allowed under the code of ethics were declared not to be in vogue in Nebraska.

INTERSTATE SALES ARE INVOLVED IN TAX SUIT

An interesting phase of the state gasoline laws has been argued before the Supreme Court of the United States in the case of the Superior Oil Co. versus State of Mississippi. The case involves the contention of the appellant that the State of Mississippi cannot collect the state's gasoline tax on sales made by distributors to packing companies in Mississippi who are under contract to supply the gasoline to fishermen operating in the waters of Louisiana. The plaintiff contends that these are interstate sales and for that reason beyond the power of the State to tax.

The Superior Oil Co. is a Mississippi corporation with headquarters at Biloxi, Miss., and is engaged in distributing petroleum products. At that city there are located a large number of manufacturing plants where raw shrimp and oysters which are obtained from fishermen in Louisiana waters are packed for commercial purposes. These fishermen sell their entire output to the Mississippi packing houses who supply the fishermen with supplies including food, clothing and gasoline.

In order to procure the necessary gasoline to operate their boats, the fishermen contract with the packers at Biloxi, Miss., to obtain for them at Biloxi, the supply of gasoline required and to transport the same to them at Grant's Pass in the State of Louisiana, and the appellants are in turn under contract with the packers to supply the requirements of the fishermen.

A fisherman desiring gasoline would therefore, in due course of business, notify one of the packers at Biloxi to obtain for him a stated amount, and the packer would place an order with the appellant for that amount. Delivery was made to the packer's boat at the wharf in Biloxi from where it would be transported to the fishermen in Louisiana. The appellant charged the gasoline to the packer, but the bills of lading were made out to the fishermen.

NEBRASKA JOBBER MEETING

The annual meeting of the Nebraska Independent Oil Men's Association will be held at Omaha, December 11, 12 and 13, instead of December 4, 5 and 6, according to an announcement by Charles M. Sutherland, secretary. The change in dates was made so as not to conflict with the annual meeting of the American Petroleum Institute which will be held at Chicago, December 3 to 5.

The headquarters of the Nebraska association are 802-803 Terminal Building, Lincoln, Neb.

DOMINION BUILDS TERMINAL

The Dominion Oil Co. of Richmond has started construction on a 2,000,000-gallon bulk oil terminal at Richmond, Va. The company will distribute the products of the Shell Eastern Petroleum Products Corp.

Four storage tanks, ranging from 5,000 to 20,000 bbls. capacity each, will be erected at the Richmond plant, in addition to seven smaller ones, with capacity for 20,000 gallons each. The terminal is expected to be completed and go into operation by January 1, next.

COMPLETE OFFICE BUILDING

The Refiners Oil Co., a large jobbing concern with headquarters in Dayton, O. has completed an eight-story building in that city. The company will maintain its general offices in the top three stories of the building. A large filling station adjoins the building.

Demand Emphasizes Need for Uniform Antiknock Tests

NEW YORK, Nov. 16.—Growing demand for antiknock or premium grades of motor fuel in the eastern area this year has been reflected by a steadily rising sales volume of this extra quality gasoline on the part of leading refining and marketing interests here. While sales of premium gasolines during 1928, on the average, represented between 20 and 30 per cent of the total gasoline gallonage of the principal companies, current indications are that the 1929 percentage will run between 30 and 40 per cent. on the average.

Interest in the premium fuel end of the business has been attracted by a statement on the part of Standard Oil Co. of New Jersey, calling attention to the lack of standardization in the rating of antiknock motor fuels, and illustrating the extreme wide diversity of quality and properties of premium fuels under present conditions.

Within a comparatively short space of time, the New Jersey company points out, the sale of antiknock gasolines has reached large proportions. There is imperative need for them in the higher compression engines now being manufactured and sold generally and in engines that are old and badly carbonized. Every motorist knows from experience that with some gasolines his motor knocks and loses power, while with others it gives smooth performance on hills and under heavy load conditions. It is not the question of whether a gasoline causes or does not cause knocking that confuses the average driver, but how to form some true estimate of the antiknock value of the various gasolines now on the market.

New Jersey Method

Many systems of antiknock measurement have been devised which are satisfactory in accuracy, speed and reproductibility. The testing laboratories of the Standard Oil Co. of New Jersey are using the most modern water-cooled single-cylinder Delco engines, equipped with Midgley bouncing pins for their

(Continued on Page 170)

ADDITIONAL STANDARD SUITS

Further light on the recent series of incorporations of "Standard Oil Companies" in various states is furnished by a suit filed in the Federal Court at Santa Fe, N. Mex., by Standard Oil Co. of California to restrain Francis C. Wilson, Herbert K. Greer and Thomas Dodge, all of Santa Fe, from using the title of Standard Oil Co. of New Mexico.

Standard of California, in its petition, states that such a designation leads to confusion and misunderstanding and that it is a trademark infringement and deception. The papers filed by the California Standard company further set forth that Harry Starr and Aaron Sapiro, prominent New York attorneys, have endeavored to incorporate similar "Standard Oil" companies in several states by causing the companies to be organized by individual respondents as incorporators.

Standard Oil Co. of California owns property representing an investment of $523,000 in New Mexico.

NEW RULING IN FLORIDA

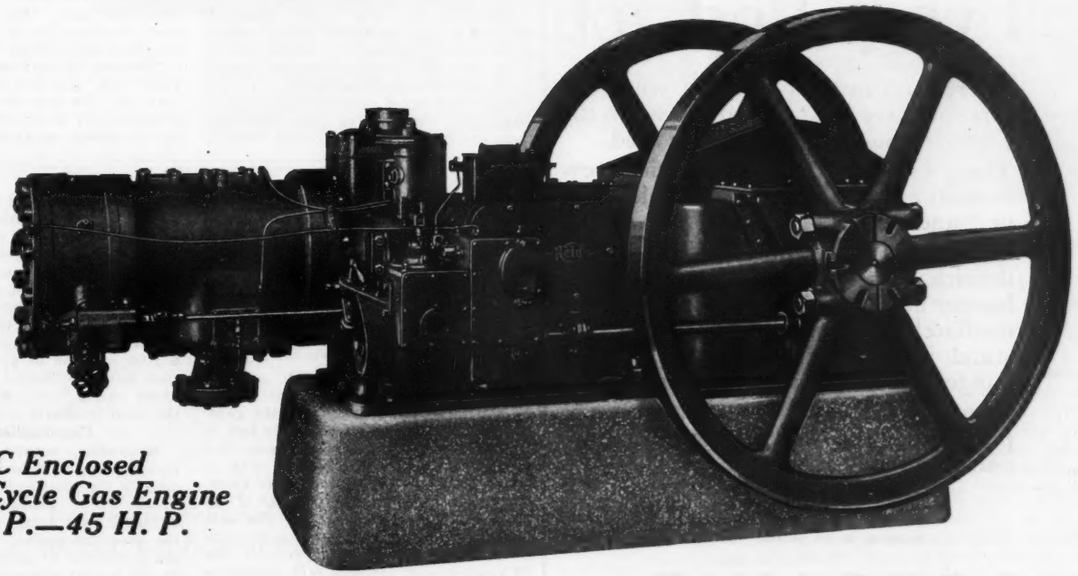
Fred H. Davis, attorney-general of Florida, has held that gasoline imported into the State and stored for the purpose of refueling airplanes in interstate service is not subject to taxation. Other stored gasoline is subject to the State's 6-cent tax.

96

Repeat Orders from One Company This Year

During the period that Reid Type C Enclosed Two Cycle Gas Engines have been in oilfield service, they have been thoroughly tested under the very severe working conditions imposed by heavy-duty reverse work.

The fact that one producing company has already purchased 96 Type C Engines so far this year, and that other major producers have standardized on them for beam-well pumping, is conclusive proof that they have more than filled the requirements set by an exacting industry.



Type C Enclosed Two Cycle Gas Engine 40 H. P.—45 H. P.

JOSEPH REID GAS ENGINE COMPANY, OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES:

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Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Oklahoma, Distributors for Bradford and Pittsburgh, Pa., Kentucky, Oklahoma, Kansas, Texas, Arkansas, Louisiana and Wyoming; R. B. Moore, Bolivar, N. Y.; distributed in California by The Republic Supply Co. of California, office address, 2122 East Seventh St., Los Angeles, Calif.

Saves
Hours of Time on
Every Rod Job

There's no lost motion—no waste effort—involved in any rod job when the Lorraine Sucker Rod Rack is used.

There's no time lost by the entire crew—waiting for the stand to be laid aside or "stacked".

As soon as the stand is pulled up, the derrick man transfers it to the special hanger and the elevator is returned immediately for another. Then the first stand is placed in the rack and the hanger is ready for the next one.

Every minute of every man's time is productive—but it's easy and fast compared to the old way.

Write us for folder describing this greatest device ever developed for running in or pulling sucker rods.

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THE Lorraine
SUCKER ROD RACK

COMPLETE GRADING AND FILL-IN JOB AT EAST CHICAGO REFINERY

By Martin H. Kidder
Link-Belt Co.

The Empire Oil & Refining Co. has well under way the construction of an entirely new refinery and a storage plant at East Chicago, Ind. The plant is located on a tract of land that was mostly swamp, muck and sand. The grounds are enclosed with a cyclone fence 6 feet high calling for fence material 3½ miles around the property.

One of the major undertakings was the grading of this site. The contract was let to the experienced A. F. Hartigan Co., of Hammond, Ind., who handled similar work for other refineries in the vicinity. He has approximately $200,000 worth of grading equipment on the job.

The grading of the land is practically finished. It entailed the moving of approximately 800,000 yards of hill and fill, besides 3,000 yards of old concrete.

Hartigan is using five Link-Belt crawler cranes equipped with dragline buckets and changing to clamshell buckets when essential. It was necessary to move these machines considerable, up and down hill, through muck over the hubs and in deep sand. In spite of these handicaps these one to four-year old cranes traveled without trouble and worked continuously without a hitch, to the satisfaction of the user.

Besides surface grading, roads have been laid out by Hartigan and the fire walls thrown up around the tanks. One of the features to receive early attention was the erection of the tanks for storage purposes. With a total capacity of about 2,000,000 bbls. of crude oil and gasoline, the tanks are as follows: Eight 80,000-bbl., fifteen 55,000-bbl., twelve 10,000-bbl., fourteen 5,000-bbl., six 3,000-bbl. and twenty 11 by 40-foot horizontal steel tanks.

A. C. Proudfoot Co., of Hammond, Ind., is unloading and hauling the steel to be used on the tanks and for this purpose nearly 8,000 tons of steel is being used.

As Lou Ruvelson, foreman for A. C. Proudfoot, says: "We were awarded this steel handling job so we relied on our two Link-Belt cranes to help us out.

"We had to do some building excavation work, and our Link-Belt is doing that too. We have excavated 3,555 yards of sand in 37 hours with a 1-yard bucket and no delays on account of the crane."

DEMAND SHOWS NEED FOR UNIFORM ANTIKNOCK TEST

(Continued from Page 168)

knock-rating analysis. The slightest tendency of a gasoline to knock is detected by these machines far more accurately than by any other device. The knock test is made with the carburetor adjusted for maximum knock conditions.

The laboratories express their ratings on a 0 to 10 scale, comparing the gasoline to be tested with a reference fuel of 10 knock rating and a subreference fuel of 5 knock rating. Zero on the scale is equal to a blend of 50 per cent of chemically pure benzol and 50 per cent of the 10 knock rating reference fuel. The subreference fuel, made by blending 30 parts of pure benzol with 70 parts of the 10 knock rating reference fuel, is used in the case of gasolines whose knock ratings fall below 5 in order to insure the greatest degree of accuracy. Periodic checks are made on the technique, and on the reference fuels supplied to the various domestic and foreign laboratories of the company as a guarantee that their value always remains constant.

As a further check, the reference and subreference fuels are rated in terms of two chemically pure and reproducible hydrocarbons such as normal heptane (a bad knocking compound) and iso-octane or benzol (both good antiknock compounds), which have practically the same boiling temperature and gravity as motor gasoline. When work along this line is complete and accepted by all laboratories, a long step toward simplifying interpretation of results will have been taken. It is the inability at present to express results in terms which are universally applicable and understandable to the layman that has led to certain confusion. At the present time, co-operative committees of engineers, chemists and oil technologists are studying the problem comprehensively, and it is hoped that out of their work may come standardized methods of expressing antiknock values. Meanwhile, the New Jersey company counsels, it is a wise attitude to give little weight to such terms as "benzol equivalent," "zero knock rating," etc., unless the basis of the term is clearly understood.

Consumption Gains

Meanwhile, notwithstanding the confusion which oil technologists are meeting with in the proper classification of antiknock fuels, consumers are steadily swinging away from "white" gasolines to the premium grades. Inquiry regarding the percentage of premium gasoline sales by the leading oil companies in the East discloses a general unwillingness to make public actual figures, although the principal interests intimate that premium gasoline sales are steadily climbing.

One company, however, well up among the leaders in the East, reports that premium gasoline sales at its service stations for the first eight months of 1929 constituted 32.91 per cent of its entire gasoline sales through these outlets, as contrasted with 26.36 per cent in the same months of 1928. Its premium motor gasoline sales through all outlets for the first eight months of 1929 constituted 20 per cent of its total gallonage, as contrasted with 13.29 per cent similarly sold in the comparable months of 1928. In a general way, it is believed, these figures are fairly representative of other large companies in the East.

An interesting feature of premium gasoline sales in this area has been the

The fire was subdued and the valves closed, thanks to the super-endurance of the

KEROTEST XMAS TREE SETTING

It happened at the McKeon No. 2—near Santa Fe Springs—a well producing 4000 barrels of oil and 7 million cubic feet of gas daily. Day and night for 26 days, the Kerotest Xmas Tree Setting capping this well was in the center of a flaming inferno which defied all efforts to control.

Every valve was encased in white hot petroleum coke that would normally sap the life out of any metal. Streams of water were constantly poured on this heated mass, but through it all the Kerotest Setting proved itself more than equal to the emergency enabling the operators to finally close the valve and thus shut off the oil which was feeding the flames.

No more severe test could ever be given to demonstrate the absolute dependability of Kerotest Valves in service—nothing could more clearly indicate the quality that is built into the very pores of Kerotest Electric Steel Drilling Valves and Fittings.

Yes, it always pays to play safe with Kerotests—Specify them for your well settings.

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THE MODERN REFINERY *requires* DEPENDABLE WATER

The refining of oil is equally dependent upon an ample and dependable supply of water as it is upon oil. The refining processes are made more dependable by relying upon an ample supply of clean pumped water. Pomona Heavy-Duty Industrial Turbine Pumps produce more water than other types of equipment from the same size well.

A few years ago one of the largest oil refineries in the World installed a Pomona Super-Turbine Pump—the excellent performance of this unit—great saving of power and dependability—prompted the engineers of that corporation to place order after order for Pomonas until today thirteen pumping units deliver millions of gallons of water each day to this giant industrial enterprise.

Unquestionable leader in the Turbine Pump Industry today, the Pomona Super-Turbine is the result of intensive effort concentrated on the perfection of but a single product for over a quarter of a century.

Repeat orders for Pomonas have become so common that they are expected—such popularity must be deserved.

Industrial Bulletin No. 16 will tell you the story of the most talked of and greatest selling Turbine Pump in America today. Write for it!

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Oceans of Water

POMONA HEAVY-DUTY *Turbine* PUMPS

almost total freedom of this class of motor fuel from the various price-cutting campaigns which have developed from time to time in the East. Most of the leading interests, upon the introduction of their premium fuels, set a 3-cent differential above the service station price for ordinary motor fuel, and this differential has been consistently maintained by all of the larger companies in this territory. Because of this situation, the importance of periodic "price wars" on "white" gasoline in certain parts of the territory is becoming minimized to a growing degree as the proportion of volume of premium grades continues to pick up.

Growing competition among the principal marketers of premium antiknock fuels is discernible, but the industry's code of ethics has become effective at a time when a tendency to cut prices on premium fuels might logically be looked for. As a consequence, it is expected that, under the protection of the code, the development of additional gallonage on premium fuels will continue unhampered by "price wars."

The average consumer is more or less bewildered by the conflicting claims put forward by various refiners and marketers for their own particular blends of antiknock gasoline. Even if the "zero" and "10 plus" ratings meant anything definite, not one consumer out of every hundred would comprehend their significance. Because of this situation development of additional gallonage on premium fuels is largely dependent upon the good will enjoyed by the various marketers. If a motorist has been a habitual user of "Socony" motor gasoline, he will naturally go on to "Socony Special" when he switches to a premium fuel. So, too, with the consumer who has been using "Standard" gasoline, and who changes over to "Esso." The "Tydol" buyer becomes the "Tydol Ethyl" customer, and so on down the line.

PAUL LYONS MARRIED

Paul Lyons, assistant chief scout, for Sinclair Oil & Gas Co., and Mrs. Pauline Sheehan, the widow of Nolan Sheehan, of the Sheehan Pipe Line Construction Co., were married at Holy Family Church, Tulsa, November 14 at 7:30 a. m., and have left on an extended honeymoon trip.

PIPE STRUNG ALONG RIGHT OF WAY

Aerial picture taken by the Fairchild Aerial Survey, Inc., showing pipe strung and ready to be laid for one of the major companies on a trunk line running from West Texas to the Gulf

SERVING WEST TEXAS

pumping wells in unit or multiple installation with ELECTRICITY

The steady, even flow of vibrationless power, which is possible with ELECTRIC pumping equipment, has three proven advantages. It produces MORE oil under all pumping conditions—with LESS wear and tear on machinery — and ELIMINATES fire hazards from power supply.

Over 2000 miles of highlines, carry an available capacity of 70,000 horsepower throughout the 45 West Texas Counties which include many of the proven oil fields. Let our Engineers show you the SAVINGS of changing to ELECTRIC POWER.

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FOR PROFIT-MINDED BUSINESS MEN IN THE OIL INDUSTRY

THIS message is addressed to profit-minded business men in the oil industry . . . . to those who seek greater business prestige, greater savings in time, greater hauling economy.

For that type of shrewd buyer Dodge Trucks have an instant appeal. In these able workers owners find power, speed, safety, dependability, good looks and low-cost operation and upkeep — qualities that business men in the oil industry everywhere find so noticeably reflected in lowered hauling costs, and thus greater profits.

Dodge Trucks will fit your needs and earn for you. For proof: Test them—compare them—ask owners in other lines of business and in your own. Buy one of these trucks with abiding confidence.

PRICES

½-TON—109″ wheelbase (4-cyl.)	$ 525
¾-TON—124″ wheelbase (4-cyl.)	675
¾-TON—124″ wheelbase (6-cyl.)	775
1-TON—133″ wheelbase (4-cyl.)	745
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1-TON—140″ wheelbase (6-cyl.) Heavy Duty	1065
1½-TON—150″ wheelbase (6-cyl.)	1345
1½-TON—165″ wheelbase (6-cyl.)	1415
2-TON—150″ wheelbase (6-cyl.)	1515
2-TON—165″ wheelbase (6-cyl.)	1585
3-TON—135″ wheelbase (6-cyl.)	1745
3-TON—165″ wheelbase (6-cyl.)	1775
3-TON—185″ wheelbase (6-cyl.)	1845

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DODGE TRUCKS

CHRYSLER MOTORS PRODUCT

SOLD BY DODGE BROTHERS DEALERS EVERYWHERE

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 62)

tional rig.

BROOKS COUNTY

Milam Drlg. Corp.'s No. 8 Riley Allen, C Blk. 37, Nesslip Subdivision of Allen Ranch, NE part ..... Drlg. at 200 ft.

CALDWELL COUNTY

Joe Bruner's No. 1 Neil, S. Morris Sur., 400 ft. NE and NW lines ..... Location in Magnolia tank farm at Luling; delayed by suit to compel Magnolia to move tank.

Horsch et al's No. 1 Mrs. Dzermowski, I. Hughson Sur., 250 ft. to E line, 600 ft. to S line of 60-ac. tract .... T. D. 1,518 ft.; dry and abandoned.

Stone et al's No. 1 Robert Guinn, Joseph Burleson Sur., 150 ft. to NE and NW lines of 225-acre farm ..... T. D. 1,711 ft.; shut down; this test is No. 2 instead of No. 1 as previously reported.

Keen & Malcolm's No. 1 Mollie McNeal, George C. Kimball Sur., 2,500 ft. to W line, 880 ft. to N line, 1 mi. S from old Luling Field ..... Spudded in.

San Antonio Pet. Corp.'s No. 1 Gustool Walkerhagen, Thomas Maxwell Sur., 150 ft. to NW and SW lines, 11 miles W from Lockhart ..... Rigging up; test to go to Edwards lime.

Cranfill & Reynolds' No. 1 Berensdorf, A. Floyd Sur. .. Location.

W. H. Harper's No. 3 Thomas, J. Roberts Sur. ..... T. D. 1,742 ft.; bailed down halfway when clamps gave way and csg. dropped 80 ft.; pulling csg. to reset at 1,468 ft.

G. R. McIntire's No. 1 J. B. Towns in Isaac Weldon Sur., 4,900 ft. to NE line, 1,350 ft. to SE line of survey ..... Drlg. 2,678 ft.; cored basal Taylor.

DE WITT COUNTY

Gibson & McIntyre's No. 1 Wm. Van Roeder ..... Shut down 1,380 ft.

F. P. Zoch's No. 1 Steinman, John Garelli Sur., 976 ft. from SW line, 1,797 ft. from NW line ..... Location.

H. T. Roe's No. 1 Leinhardt ..... Drlg. 1,535 ft. in shale.

DIMMITT COUNTY

Texas Oil & Fuel Co.'s No. 1, Laxon Sur., 653.5 ft. W Carrizo Springs ..... T. D. 646 ft.; shut down.

DUVAL COUNTY

Trussell & Partee's No. 1 E. R. Hagest, Sur. No. 271, Blk. 7, 450 ft. E line, 150 ft. S line ..... Drlg. 2,000 ft.

National Oil Co.'s No. 2 Ball, Agua Poquita Sur., Blk. 3.. Drlg. 1,150 ft.; depth corrected.

Southern Oil Co.'s No. 1 Welder Ward, Sur. 215 ..... T. D. 750 ft.; standing, waiting on water.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlaw ..... Shut down 3,000 ft. awaiting orders; expect to drill deeper.

FAYETTE COUNTY

Muldoon Oil & Gas Co.'s No. 1 Kemp, M. Smith League .. Drlg. 1,000 ft.

W. J. Kelly's No. 1 Burke ..... Shut down 1,000 ft.

FRIO COUNTY

Frank B. LeFeure's No. 1 H. W. and R. L. Eschenburg, Edward Galligher Sur. No. 789, 3,980 ft. W of SE cor. of Edward Galligher Sur. No. 788 and 1,320 ft. S of N line of Edward Galligher Sur. No. 789 ..... Location.

GOLIAD COUNTY

Compton Oil Co.'s No. 1 Fromme, Dexter Survey..... Standing.

Humble Oil & Refg. Co.'s No. 1-A Spangle ..... Drlg. 1,037 ft.

F. P. Zoch's No. 1 Kaufman ..... T. D. 3,006 ft.; resumed drlg. after pulling lines.

Mission Drlg. Co.'s No. 3 Ray, 3 miles E of No. 2. T. D. 4,250 ft.; plugged back to 4,250 steel line measurement.

Western Union Oil Co.'s No. 1 Lucas, Juan Moya Delgado Sur. ..... Drlg. 800 ft. in pink shale.

GONZALES COUNTY

Acme Oil & Royalty Corp.'s No. 1 Weber, Thomas Wright Survey ..... T. D. 1,400 ft.; coring.

Joyce & Stephens' No. 1 Taylor, in city limits of Waelder ..... T. D. 600 ft.; set casing.

Dunning & Pierce's No. 1 Stahl, Sarah Hendricks Sur., 150 ft. to SE and NE lines of farms ..... Location.

Cranfill & Reynolds' No. 1 F. J. Lang, James Rodney Sur., 150 ft. from N line, 450 ft. from E line ..... T. D. 2,350 ft.; drlg. in sandy shale.

Adams & Lyles' No. 1 Jackson Sur. ..... Shut down 800 ft.

Joe Bruner's No. 1 R. D. and J. C. Miller ..... T. D. 3,350 ft. in shale; drlg

Linderman Bros.' No. 2 F. H. Frampton in Richard Heath Sur. ..... Skidded rig 40 ft. from No. 1.

Finnell & Elam's No. 1 Robinson, Liverpool Sur. ..... Shut down 1,720 ft.

Hoffman et al's No. 1 Borrer, J. Stewart Sur ..... Drlg. 1,025 ft.

Marshall & Moore's No. 1 St. Clair, R. H. Wymn Sur. ... T. D. 1,700 ft.; to resume drlg. soon.

United North & South's No. 1 J. H. Kerr, in James Bowman Sur., 150 ft. S of CNL of tract, 11 miles W from Waelder ..... Making location.

United North & South Dev. Co.'s No. 1 J. E. Preston 120 acres, John Oetkins Sur., 1,350 ft. to S line, 750 ft. of W line ..... Rigging up.

L. L. Jones' No. 1 J. F. Kindred, W. W. Barnes Sur., 700 ft. W line, 1,000 ft. S line ..... Location.

J. H. Burt et al's No. 1 E. Menking, Blk. 24, 150 ft. to N and 450 ft. to E line of Blk. 24, 14,050 ft. to NW and NE line of Sur. ..... Rigging up.

Linderman Bros.'s No. 1 F. H. Frampton ..... T. D. 2,000 ft.; lost hole; shot casing and will skid 50 ft. and drill new hole.

A. G. Keiffer's No. 1 B. B. Dix ..... 2,700 ft.; coring Taylor marl showing oil.

GUADALUPE COUNTY

H. H. Weinert's No. 1 A. E. Dowdy, J. C. Darst Sur., 110 ft. S line, 36 ft. E line ..... Location.

H. H. Weinert's No. 2 A. E. Dowdy, J. C. Darst Sur., 100 ft. N line, 36 ft. E line..... Location.

J. O. Dore's No. 1 Appling, H. Cottlebur ..... Completed water well and fired up to start drlg. for oil.

Grayburg Oil Co.'s No. 1 Wells, Jose La Baume ..... Drlg. 3,662 ft. in chalk.

Pagenkopf & Kennon's No. 1 Halm, Joseph Kent Sur., 5 miles E of Seguin ..... T. D. 1,570 ft.; coring; formation hardening.

T. H. Poole et al's No. 1 F. Behring, Green DeWitt Sur. ..... P. B. about 10 ft. and will bail again; T. D. 2,356 ft.

Adams-Lyles-Walton's No. 1 Zoberoski, Jesus Cantu Sur.. Corrected depth 953 ft.; standing

HAYS COUNTY

E. A. Bucklin's No. 1 A. Elsner ..... T. D. 725 ft.; taken over by Chas. Bell and associates; about to resume drilling.

J. A. Lang's No. 1 W. G. Barber, 7 miles SE from Buda.. T. D. 500 ft.; drlg. in chalk.

JACKSON COUNTY

Wright Bros.' No. 7 Drushell ..... Standing 3,875 ft.

JIM HOGG COUNTY

T. J. Conway's No. 2 Palacious Sur. 232, Blk. 10 ..... Drlg. 400 ft.

T. J. Conway's No. 4 Leyendecker, Blk. 9, Sur. 234, 150 ft. S line, 150 ft. E line ..... Drlg. 1,700 ft.

Deep Rock Oil Co.'s No. 1 Kelsey ..... Standing 2,510 ft.

L. M. Holden's No. 4 Jones, 1,320 ft. to north line, 1,320 ft. to east line of 160 acres out of Share 5 "A" Dregue Hinojosa Grant ..... Standing 42 ft.

R. E. Moore's No. 1 Yaguirre, 150 ft. N & E lines Las Animas Grant ..... T. D. 2,508 ft.; abandoned dry.

JIM WELLS COUNTY

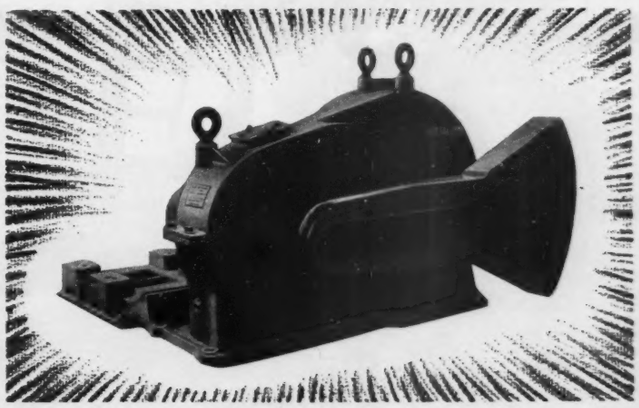
E. W. Ogden's No. 1 G. Farris, M. Perez Sur. ..... T. D. 2,404 ft.; tested small amt. of gas at 2,404 ft.; drlg. 2,404 ft.; will deepen.

REASONS

Why Westinghouse Nuttall Gears Improve Electrical Pumping

No. 4

A Type OP-11 double-reduction gear unit, complete with balanced crank and motor bedplate, for 15-35 and 20-50-hp. two-speed oil well moto s



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WITH Westinghouse-Nuttall double-reduction gear drives in place of countershafts and bandwheels, the overall mechanical efficiency of electric pumping equipment —motor to polish rod—is practically doubled, for these gear units have a remarkably high efficiency of from 96 to 98 percent.

The more efficient operation thus obtained results in a considerable decrease in power consumption of the motor, and consequently lowers the cost of production.

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Detailed information on Westinghouse-Nuttall oil well gear units can be obtained from any branch of the Oil Well Supply Company, located in all oil fields, or from any Westinghouse sales office.

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"American" Enclosed Power Heads for Water Wells

Illustrated above is an "American" totally enclosed power head for water service in connection with the oil wells of the Amerada Petroleum Corporation in the Seminole field. They are built for hard service, pipe line stations, tank farms, gasoline plants and refineries. They are made in various sizes to meet any usual well conditions.

These heads are designed for either motor or engine drive. The heads are totally enclosed and all moving parts are automatically oiled. They are sturdy machines that require the least possible attention. The removal of the cover permits ready access to the working parts, and permits rods to be pulled without disturbing pipe connections.

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THE AMERICAN WELL WORKS

General Offices AURORA, ILLINOIS *and Factory*

KARNES COUNTY

Ruby & Claypool's No. 1 Tom, V. Zepeda Sur., 850 ft. N line, 1,600 ft. E line ..... Shut down 1,150 ft.
Benedum-Trees' No. 1 S. E. Crews, Britton Odem Sur. .... Shut down 2,685 ft.; tested sulphur water at 2,141-46 ft.
Hurador Oil Co.'s No. 1 W. E. Porter ..... T. D. 2,758 ft.; drlg. in hard sand.
The Texas Company's No. 1 Rhuman ..... Completed and abandoned; dry at 1,036 ft.

KERR COUNTY

L. R. Page and associates' No. 1 Real ..... T. D. 4,500 ft.; drlg. below 4,500 ft.
O. E. Tunstill et al's No. 1 Love Ranch, 2 miles E of Real County line, 3 miles N of Bandera County line ..... Moving in rig.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... Drlg. 600 ft.

KLEBERG COUNTY

Bowen et al's No. 1 King Ranch, 12 miles SW of Kingsville ..... Moving in rig from Refugio.

KINNEY COUNTY

Lloyd Oil Co.'s No. 1 G. B. Moore, Survey 117 ..... T. D. 2,680 ft.; drlg. in shale and shells.
A. Blume's No. 1 School land, Sec. 15 ..... T. D. 186 ft.; completed as gas producer; capped.

LIVE OAK COUNTY

O'Neil & Catlett No. 1 Smith, 900 ft. SW line, 150 ft. NW line ..... Drlg. at 1,600 ft.
Dr. J. K. Rowan Co.'s No. 1 Lynne Ranch, 171 ft. W of George West ..... Location.
J. P. Lightfoot's No. 1 Lewis ..... T. D. 2,525 ft.; in hard sand; abandoned, dry.
Simmons Oil Co. No. 1 Richard Coquat in Jas. C. Hill survey 2,250 ft. to S. line 1,750 ft. to E. line, 7 miles NE of Oakville ..... Rigging up.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 4 J. M. Chittim ..... T. D. 5,560 ft.; setting csg.
Rycade Oil Corp.'s No. 4 Sullivan ..... T. D. 5,792 ft.; pulling casing.
Rycade Oil Corp.'s No. 5 Chittim ..... Drlg. 1,500 ft.; ready to resume.
Rycade Oil Co.'s No. 3 Chittim, Blk. 7, Sur. 116, I.&G.N. 175 ft. N of No. 1, 10 ft. W, 255 ft. S line ..... T. D. 5,791 ft.; drilling.
The Texas Company, 6 miles west Darling Switch ..... T. D. 3,850 ft. in brown lime; to set csg.

MEDINA COUNTY

Pan American Petroleum Co.'s No. 1 Harrison, Sur. 799 .. Rigging up.
Pat Armstrong's No. 1 C. W. Butts in George C. Hanson Sur. ..... Drlg. 620 ft.
Donaldson Oil & Dev. Co.'s No. 1 Adams Co., James Hillemmeyer No. 25 Sur., 500 ft. to E line of Sur., 150 ft. to S line of N half of Sur. ..... Moving in machinery.
Peters et al's No. 1 Noonan, J. N. Alsbury Sur. ..... T. D. 1,492 ft.; drlg. in Georgetown.
Cecil Switzer's No. 1 Zen, 6 miles west of Hondo..... Fishing 3,487 ft.
R. C. Hill's No. 1 A. Wuezbach, G. Areola Sur., 600 ft. E line, 600 ft. S line ..... Location.
Jake Jarman's No. 1 J. D. Nixon, A.B.&M. Sur. No. 63, 1,400 ft. to N line, 1,300 ft. to E line ..... Location.
A. W. Skogland's No. 1 Saathoff, A. Smelzer No. 19 Sur.. T. D. 910 ft.; taken over by Carl Bros. from A. W. Skogland; shut down.

MILAM COUNTY

Service Oil & Gas Co.'s No. 1 Muldrow, L. Taylor Sur., SE cor. ..... Location.
E. L. Chapman's No. 2 Johnson, J. J. Acosta Sur. ..... 2,100 ft. hot sulphur water in Edwards.
I. P. Sessions' No. 7 J. Bauer, T. J. Chambers Sur. .... Location.
E. L. Chapman's No. 1 Holman in J. J. Liendo Survey.... Drlg. 2,015 ft.
Michalk & Clark's No. 1 J. M. Gilchrist, J. J. Acosta Sur., 500 ft. to S line, 150 ft. to W line of farm .... T. D. 1,150 ft.; drlg. in Taylor marl.
Noack-McCarmack's No. 1 D. D. Fowler ..... T. D. 1,883 ft.; fishing for tools.
Diggs and others' No. 1 Nolen ..... Derrick.
Hill & Bonwell's No. 1 B. Booker, James Welch Sur. .... Fishing 2,020 ft.
Lloyd Oil Corp.'s No. 1 Camp, D. Robinson Sur. ..... Sulphur water in Edwards lime at about 2,100 ft.; abandoned dry.
Lloyd Oil Corp.'s No. 1 San Clement, Fokes Sur. ..... Spudded in.
W. H. Wray's No. 1 D. D. Fowler ..... Drlg. 964 ft. in sandy shale; had odor of gas at 955 ft.

McMULLEN COUNTY

Sun Oil Co.'s No. 1 Berry, J. Poitenent Sur. No. 9 ..... Drlg. 250 ft.; set 70 ft. of surface casing, cementing to the top.
Cowboys Oil Co.'s No. 1 Shiner, H. M. Brewer Sur. ..... Testing gas sand, 2,269 ft.

NUECES COUNTY

Nueces River Basin Dev. Co.'s No. 1 F. C. Allen ..... T. D. 3,940 ft.; cored 3 ft. in sand with odor of oil; reamed down from 2,700 ft.
H. Grimm et al's No. 1 A. R. Roberts, Blk. 79, Winter Vegt. Garden Subdivision, 6 miles NW of Robstown, 12 miles NE Agua Dulce Field ..... T. D. 775 ft.; drlg. in tough gumbo.
Trinity Drillers and Sun Co.'s No. 1 Tompkins ..... T. D. 3,205 ft.; W. O. fuel oil; depth corrected.

SAN PATRICIO COUNTY

LaFeria Oil & Gas Co.'s No. 1 C. C. Smith in J. C. White Survey, 690 ft. to north line, 350 ft. to east line .... Drlg. 1,312 ft. in sand; shut down for fuel oil.

STARR COUNTY

The Texas Company's No. 4-A V. G. Guerra, Porcion 67, Share 305-D ..... Drlg. 3,580 ft.
Smith & Adams' No. 1 Welch, Pedernal Sur. ..... Drlg. 600 ft.
Milam Drlg. Co.'s No. 5 R. Allen, Blk. 147 ..... Location.

UVALDE COUNTY

Waldrop & Welch's No. 1 H. S. Benson, 2 miles northwest of Uvalde ..... T. D. 460 ft.; drlg. in Edwards lime; shows a little gas.
Phantom Oil Co.'s No. 1 Claudt Sur. 661 ..... Moving in machinery.

WEBB COUNTY

L. W. Nelson's No. 2 Moglio, SE NW Sur. 675 ..... Abandoned 2,800 ft.

WILLIAMSON COUNTY

M. L. Vaughan's No. 1 Logan D. Wright Sur., 300 ft. E line, 500 ft. S line ..... Location.
Ray Oil Co.'s No. 1 W. J. Fouse, W. Donoho Sur. ..... 156 ft.; waiting on heavier rig.
W. J. Harlan's No. 1 J. V. Stile, J. Bevil Sur., 600 ft. N line, 900 ft. E line ..... Location.

WILSON COUNTY

R. M. Sherer's No. 1 Tummilson, A. Trevena Sur. ..... 457 ft.; standing.
Tidal Oil Co.'s No. 1 Felix Kulesza, Susanna Larrison Sur., 235 ft. to E line, 1,320 ft. to S line of 647-acre tract ..... Derrick up; drlg. water well.
Trinity Drillers' No. 1 Richter in Trevino Sur., 3,005 ft. to E line, 250 ft. to N line of 58-ac. lease ..... Rigging up.
Rycade Oil Corp. et al's No. 1 George Hice, Juan Delgado Sur., 650 ft. W of Cibolo River, 150 ft. SE line of tract ..... Location.
Grayburg Oil Co.'s No. 1 Tigler, Parrot Sur. ..... T. D. 3,396 ft.; temp. shut down.
R. M. Sherer's No. 1 First State Bank of Stockdale, Moran Sur. ..... 220 ft.; standing.

ZAPATA COUNTY

R. F. Blankenship's No. 1 G. T. Montemeyer, Sur. 45, Blk. 7, 150 ft. N & E lines ..... T. D. 1,100 ft.; resumed drlg.
Magnolia Pet. Co.'s No. 2 F. G. Martinez Sur. No. 6, 660 ft. to N line, 660 ft. to E line ..... Drlg. 80 ft.
O. W. Killam's No. 1 J. G. Martinez Sur No. 2, 550 ft. W line, 150 ft. S line of SE of Sur. ..... Derrick.
Magnolia Pet. Co.'s No. 3 F. G. Martinez Sur. No. 6, 660 ft. N line, 660 ft. E line of W half of Sur. ..... Location.
John Pappas' No. 2 Cuellar, Por. 33 and 34 ..... Drlg. 1,529 ft.
Hill et al's No. 1 A. O. de Vela, Blk. 30, El Grulle Sur. ..... T. D. 1,052 ft.; preparing to run csg.

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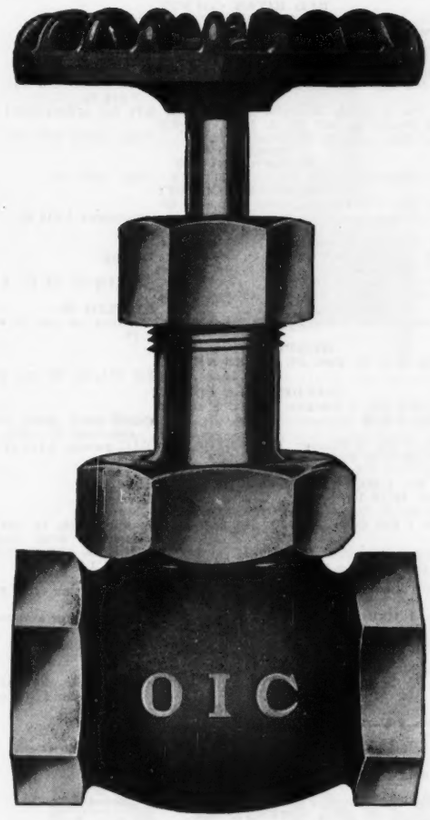

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Shell Pet. Co.'s No. 2 Lopez, Blk. 11, Sur. 288, 600 ft. NW line, 600 ft. SW line ..... Drlg. 25 ft.
National Oil Co.'s No. 1 D. B. Adams ..... Standing 670 ft.; showing some gas; waiting on water.

Marts & Beavens' No. 1 Trevino, Blk. 2, Porcions 2 and 3, Sur. 1, 150 ft. SE line and SW line ..... Drlg. 2,250 ft.

ZAVALA COUNTY

Tritex Oil Co.'s No. 1 Clay Burns ..... T. D. 780 ft.; standing.
Chicago Merchants Produce Co.'s No. 1 fee, 1 mile E of La Pryor ..... Drlg. 1,000 ft.
Tritex Oil Co.'s No. 2 Childress, one-fourth mile NW of old Dominion Co.'s No. 1 Pryor ..... Drlg. 650 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 60)

CATAHOULA PARISH

P. J. Becker, trustee's No. 1 Tull, SW cor. NE NE, Sec. 23-12-15 ..... Fishing 7 joints drill stem; T.D 2,475 ft.
Longstreet Synd.'s No. 1 Ramsey, NE cor. SW NE, Sec. 33-13-16 ..... Changing to heavy rig and arranging to sidetrack; T.D 2,802 ft.
Magnolia Pet. Co.'s No. 1 Anna Mason, 990 ft. S, 990 ft. E, NW cor. SW, Sec. 27-12-11 ..... Tested 2,614 ft.; estimated 4,000,000 ft. gas with flow S.W.; coring at 2,622 f..

FRANKLIN PARISH

Davis et als' No 1 Moore, 600 ft. W, 200 ft. S, NE cor. Sec. 12-11-6 ..... S.D. 1,430 ft.
Franklin Oil & Gas Co.'s No. 1 J. T. O'Brien, 300 ft. N, 300 ft. E, SW cor. NW, Sec. 17-15-9 ..... Began drlg. Nov. 12; drlg 100 ft.

MOREHOUSE PARISH

J. P. White's No. 1 Chess-Wymond, Sec. 32-19-6 ..... Tested S.W. 3,035 ft; W.O
Rainbow Oil Co.'s No. 1 Louisville Cooperage Co., 990 ft. S and E, NW cor. NE, Sec. 33-22-8 ..... Derrick.

NATCHITOCHES PARISH

S. D. McDaniel's No. 2 Clark & Morse, 800 ft. E. 350 ft. N, C, Sec. 23-5-6 ..... Tested 1,000,000 ft. gas and S.W 8 ft.; S.D. for orders; T.D. 2,536 ft.
Nichols & Wilder's No. 1 Clark, 150 ft. W, 250 ft. N, SE cor., Sec. 10-10-8 ..... Rigging up.
Robeline O. & G. Co.'s No. 1, NE SW, Sec. 7-8-9 ..... Drill stem stuck; waiting orders claim show gas; T.D. 3,230 ft.

OUACHITA PARISH

R. D. Hunter's No. 1 West Va. Lbr. Co. N½ NE, Sec 25-18-5 ..... Drlg 2,124 ft.

RAPIDES PARISH

Ayers Bros.' No. 1 Wickliff, 2,790 ft. N, 150 ft. E, SW cor., Sec. 9-5n-2e ..... S.D. for water; T.D. 900 ft.

RED RIVER PARISH

W. D. Ball's No. 1 Krumholtz, 660 ft. S, 660 ft. S. NW cor., Sec. 32-14-10 ..... S.D. waiting orders 950 ft.
Benedum & Trees Oil Co.'s No. 1 Franklin Realty Co., 350 ft. E, 350 ft. S, NW cor., Sec. 29-11-9 ..... Coring 3,680 ft.
Eylers O. & G. Co.'s No. 4 Chaffraix, 150 ft. S, 170 ft. W, NE cor. SW SE, Sec. 30-12-10 ..... Dry at 2,706 ft.; drlg to 2,750 ft.
LeGrande et als' No. 1 Sample, Sec. 11-14-11 ..... Rigging up.
D. H. Riddick's No. 1 Johnson, 500 ft. N, 500 ft. W, SE cor., Sec. 17-12-10 ..... S.D. 1,050 ft.; laying gas line.

RICHLAND PARISH

Austin & McDonald's No. 1 Hunt, 594 ft. N, 660 ft. E, SW cor., Section 13-17-5 ..... Derrick.
Austin & McDonald's No. 2 Millsaps, SW cor., Sec. 17-17-6 ..... Waiting orders; T.D. 2,679 ft.
Austin & McDonald's No. 3 Millsaps, 1,980 ft. S. 660 ft. E, NW cor., Sec. 16-17-6 ..... Tested S.W.; W.O. 2,477 ft.
Austin & McDonald's No. 4 Millsaps, NW cor., Sec. 16-7-6 ..... Location.
Austin & McDonald's No. 5 Millsaps, 2,640 ft. N, 1,320 ft. W, SE cor., Sec. 8-17-6 ..... Derrick.
Industrial Gas Co.'s No. 1 A. T. Davidson, 1,856 ft. S, 916 ft. E, NW cor. Sec. 6-16-7 ..... Cmtd. 9-in. at 920 ft.
Industrial Gas Co.'s No. 1-A Jack Davidson, N 1 degree W, 1,094 ft. S, 2,501 ft. E, NW cor. Sec. 6-16-7 ..... Cmtd. 9-in. at 920 ft.
Industrial Gas Co.'s No. 1 Ruston Drlg. Co., 1,980 ft. S, 1,955 ft. E, NW cor. Sect. 7-16-7 ..... Cmtd. 9-in. at 910 ft.
Palmer Corp.'s No. 2 Miles, 723 ft., E, 660 ft. S, NW cor. NE, Sec. 12-17-6 ..... Cmtd. 6-in. 2,315 ft.
Triangle Drlg. Co. and Woodley Pet. Co.'s No. 1 G. L. Cumpton, 660 ft. S. 660 ft. W, NE cor. NW SE, Sec. 16-17-7 ..... Set 12½-in. at 206 ft.; T.D. 870 ft.

SABINE PARISH

R. L. Gay's No. 1-A Bowman-Hicks, 900 ft. S, 200 ft. E. C, Sec. 34-8-12 ..... Drlg. 2,408 ft.; set 8¼-in.
R. L. Gay's No. 5 Bowman-Hicks, 1,120 ft. W, 920 ft. N, SE cor., Sec. 14-7-14 ..... Drlg. 2,165 ft.
R. L. Gay, trustee's No. 1 Long-Bell Lbr. Co., NE cor. NW NW, Sec. 26-8-14 ..... Fishing job 3,533 ft.
R. L. Gay, trustee's No. 2 Sabine Lbr. Co., Sec. 23-7-14 ..... Drlg. 3,741 ft. in lime.
Sabine O. & G. Co.'s No. 1 Anderson, 200 ft. N, 200 ft. E. SW cor. SW NW, Sec. 19-18-13 ..... Drlg. 1,570 ft.
A. H. Trevor's No. 1 Long-Bell, 330 ft. S, 330 ft. E, NW cor. SW NW, Sec. 29-8-13 ..... Reported dry and aband. 3,535 ft., in error; fished out bailer; tested 250,000 ft. gas and small show oil 3,535 ft; drlg. lime 3,564 ft.

UNION PARISH

Fred Stovall's No. 1 Stovall, 1,820 ft. E, 350 ft. N, SW cor., Sec. 32-23-4 ..... Rig up.

WEBSTER PARISH

F. M. Fuller's No. 1 Monzingo, 200 ft. N, 200 ft. W, SE cor., Sec. 27-18-8 ..... Began drlg. Nov. 10; cmtd. 10-in. at 62 ft.
Paul C. Warren et al's No. 1 Martin, 305 ft. N, 212 ft. E. SW cor. Sec. 20-20-9 ..... Drlg. 850 ft.

ARKANSAS

ASHLEY COUNTY

Ark. Fuel Oil Co.'s No. 1 Crossett Lbr. Co., 330 ft. E, 330 ft. S, NW cor., Sec. 1-19-7 ..... Rigging up.
J. G. Marcum, trustee's No. 1 McGarry, 300 ft. W, 100 ft. S. C, Sec. 9-19-4 ..... Test salt water 3,248 and 3,267 ft.; dry at 3,281 ft.; arranging retest 3,300 ft.

CLARK COUNTY

Wm. Henry, trustee's No. 1 Clark, Sec. 34-9-21 ..... S.D. 1,300 ft.

COLUMBIA COUNTY

Talbot & Markle's No. 1 Copeland, 300 ft. S, 300 ft. W, NE cor. SE NW, Sec. 31-19-19 ..... Drlg. 4,250 ft.

FAULKNER COUNTY

Gold Creek Oil & Gas Co.'s No. 2 Stermer, SE cor. NW SE, Sec. 17-4-13 ..... Rigging up.

GARLAND COUNTY

Givens et als' No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19 ..... Began drlg. Aug. 10, 1926; hard sand 3,168-96 ft.; claims show gas; drlg.

GRANT COUNTY

Jones & Watkins' No. 1 Meek, Sec. 5-4-11 ..... S.D. 1,400 ft.

JOHNSON COUNTY

Ark.-La. P. L. Co.'s No. 2 Bynum, Sec. 12-10-24 ..... Drlg. shale 3,700 ft.

LITTLE RIVER COUNTY

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32 ..... Drlg. 1,783 ft.
McDonald & Shaw's No. 1 W. E. Black, 240 ft. N, 450 ft. W, SE cor. SE NE, Sec. 12-13-28 ..... S.D. 1,542 ft.

LOGAN COUNTY

Ark. Nat. Gas Corp.'s No. 1 Hanna, Sec. 26-7-22 ..... Drlg. heaving shale 4,140 ft.

MADISON COUNTY

Phillips Pet. Co. and F. S. Craver's No. 1, C, Sec. 11-14-28 ..... Tested 250,000 ft. gas 63 ft.; drlg. sandy lime 1,300 ft.

MILLER COUNTY

E. B. Lenz et als' No. 1 Bossier Co., NW cor. Sec. 13-15-26 ..... Drlg. shale 3,020 ft.

OUACHITA COUNTY

Copenhaven et als' No. 1 Warnick, Sec. 2-15-17 ..... S.D. 2,190 ft.
C. H. McDonald's No. 1 Fogle, Sec. 13-14-16 ..... S.D. 2,301 ft.; W.O.
Kobler & Erickson's No. 1 Rumph & Tyson, 300 ft. N, 300 ft. W, SE cor. Sec. 13-15-15 ..... Set 10-in. at 98 ft.
The Texas Co.'s No. 1 Avera, 250 ft. N, 250 ft. E, SW cor., Sec. 35-15-15 ..... Cleaning out; T.D. 1,984 ft.
Wesson et als' No. 1 Booth, Sec. 12-15-19 ..... S.D. 2,203 ft.

POPE COUNTY

Cosden Oil Co.'s No. 1 Mo. Pac. R.R., 660 ft. N, 660 ft. E, SW cor. NW SE, Sec. 13-9-9 ..... Rigging up.

PRAIRIE COUNTY

Transcontinental Oil Co.'s No. 1 Louis Novak, 330 ft. E, 330 ft. N, SW cor. SW NE, Sec. 36-2n-6 ..... Cmtd. 8-in. 2,058 ft; T.D. 2,060 ft.

UNION COUNTY

Addie & Modisette's No. 1 Union Sawmill, SW cor. SW SE, Sec. 25-19-12 ..... Location.
Ark. Drlg. Co.'s No. 1 Norris, 150 ft. S, 150 ft. W, NE cor. SE SE, Sec. 17-18-12 ..... Top red beds 2,980 ft.; drlg. 3,105 ft.
Sam Arrendale's No. 1 Gallagher & Nelson, 200 ft. N and W, SE cor. Lot 5, Sec. 18-18-17 ..... S.D. 2,268 ft.
W. M. Coates, trustee's No. 1 McDuffie, Sec. 32-19-17 ..... Cmtd. 6⅝-in. 3,942 ft; to test 4½ ft. sand; T.D. 4,057 ft.
O. W. Estes' No. 1 Felsenthal, 330 ft. S, 330 ft. W, NE cor. NE NW Sec. 2-18-15 ..... S.D; W.O. 125 ft. oil and S.W in hole; T.D. 2,191 ft.
Federal Pet. Co.'s No. 1 Union Sawmill fee, NW cor. NE SW, Sec. 5-17-12 ..... Dry; no show at 2,330 ft.; salt water at 2,627 ft.
E. M. Jones' No. 1 Loutre Lbr. Co., NE cor. NW SW, Sec. 17-19-14 ..... Drlg. 3,221 ft.
E. M. Jones' No. 1 Hardy & Murphy, 216 ft. N, 256 ft. W, SE cor. SW, Sec. 34-19-14 ..... Drlg. 3,940 ft.
Stark et als' No. 1 Ainsworth, NE cor. NW NE, Sec. 8-19-16 ..... Drlg. 1,100 ft.
T. J. Woodley's No. 1 First Natl. Bank, NW cor., Sec. 34-19-18 ..... Derrick.

VAN BUREN COUNTY

Glenn Cole et als, trustee's No. 1 Scanlan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... S.D. 50 ft.

WASHINGTON COUNTY

O'Hara & Shetterly's No. 1 Boyd, SE cor. SE NE, Sec. 12-16-32 ..... Spudded Sept., 1928; S.D. 140 ft., resumed drlg. Aug. 25; U.R.; T.D. 150 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... Cmtd. 6-in. 1,320 ft.; S.D. 1,342 ft
Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32 ..... S.D. 1,040 ft.; repairs.

WHITE COUNTY

Letona Synd.'s No. 1 Letona, SE cor. NW SW, Sec. 35-9-8 ..... Drlg. black caving shale 3,490 3,500 ft.

EAST TEXAS

CAMP COUNTY

Rogers et als' No. 1 Enfelt, R. M. Montgomery Sur. ..... Tested dry 1,870 ft.; S.D. 1,920 ft

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossier, E. Hughhart Sur. ..... Drlg. 2,050 ft.
Shad Harper's No. 1 W. R. Garland, J. Wagley Sur. ..... S.D. 1,862 ft.
Johnson Pet Co.'s No. 2 Randolph, Edward Dean Sur. ..... S.D. 2,000 ft.

SHELBY COUNTY

Benedum & Trees Oil Co.'s No. 1 Pickering Lbr. Co., 300 ft. S, 300 ft. W, NE cor. Lot 20, D.T.F. Yordt Sur. ..... Trying to kill salt water flow 2,862 ft.
Chapperall Oil Co.'s No. 2 Holt, Matthew Moore Sur. ..... S.D. for orders 3,004 ft.
Gulf Ref. Co.'s No. 2 Pickering, 463 ft. S, 29 ft. W, SW cor. P. W. Harvey Sur. in J. H. Patterson Sur. ..... Drlg. chalk 2,075 ft.

MISSISSIPPI

ALCORN COUNTY

Alcorn Pet. Co.'s No. 1 Matthews, SE cor., Sec. 14-2s-7e ..... Drlg. 2,700 ft.

CHICKASAW COUNTY

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20 13-3 ..... Quicksand 1,240 ft.

HINDS COUNTY

Harry Gerson's No. 1 Edward House, Blk. 16, West Jackson Subd., City of Jackson, in Twp. 5n, Range 1e ..... Rig up.
Oscar Brown's No. 1 Riverside (formerly Hennessee et als') SE cor. SE SW, Sec. 23-16-5 ..... Set 12½-in. 30 ft; S.D. 1,050 ft.
Mrs. Reeder et als' No. 1 State, SE cor. NW NW, Sec. 25-6-1e ..... S.D. 2,895 ft.
South Christian Institute's No. 1 fee, SE SW, Sec. 29-6-4. Waiting on csg. to set; T.D. 1,203 ft.

HUMPHREYS COUNTY

E. C. Steele et als' No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w ..... Set 12½-in. 60 ft.; S.D.

LAUDERDALE COUNTY

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 ft. S and E, NW cor. NE, Sec. 2-7-16 ..... Cored sand, shale and gumbo 3,494-2,500 ft.; S.D. 2,786 ft.
Meridian O. & G. Co.'s No. 1 Hauser, Sec. 33-8-18 ..... S.D., gumbo 2,410 ft.
J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-6-14 ..... Derrick.

LAFAYETTE COUNTY

Banks-Goode et als' No. 1 May, 113½ rods S, 26 rods E, NW cor. SW, Sec. 22-10-1w ..... Derrick.

LINCOLN COUNTY

La.-Miss. Oil Co.'s No. 1 Pat Case, NE NE, Sec. 21-8-6 ..... Spudded Feb. 17, 1929; S.D. 50 ft., resumed drlg. Aug. 12; cmtd 12½-in. 368 ft.; S.D., salt water sand 1,213 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D.; waiting for 5 3/16-in. csg 2,580 ft.
Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19 ..... Fish. for liner and tools 3,045 ft.
Park Bowser et als' No. 1 Cowart, second hole, Sec. 2-12-19 ..... S.D. 30 ft.

RANKIN COUNTY

Home Oil Prod. Co.'s No. 1 E. P. Rainey, NW NW, Sec. 13-5-1e ..... Claim show gas 2,912 ft.; recmtd. 10-in. casing for test.

WARREN COUNTY

El Dorado Oil Co.'s No. 1 Dornbush, Sec. 8-18-5 ..... Drlg. 2,400 ft.

YALOBUSHA COUNTY

Philip Bros.' No. 1 James, Sec. 20-11-5 ..... Coring 3,420 ft.
Carter Oil Co. and J. D. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, C, Sec. 14-11-4 ..... Rigging up.

YAZOO COUNTY

Amerada Pet. Co.'s No. 1 Doherty, SW SW Sec. 24-12-2 Location.

TENNESSEE

DECATUR COUNTY

Chester County Oil Co.'s No. 1 Montgomery ..... Cmtd. 6-in. 1,040 ft.; drlg. hard gray lime 1,165 ft.

ALABAMA

CHOCTAW COUNTY

Robinson & Greer's No. 1 Douglas Oil Co., 320 ft. N, C Sec. 15-19-2 ..... Coring 3,400 ft.

LAMAR COUNTY

Briggs & Knapp's No. 1 Wefel, Sec. 25-12-14 ..... Reaming to bottom; T.D. 1,180 ft

MARION COUNTY

Hobson and others' No. 1 John Clark, SE Sec. 29-11-14 Drk. pattern.

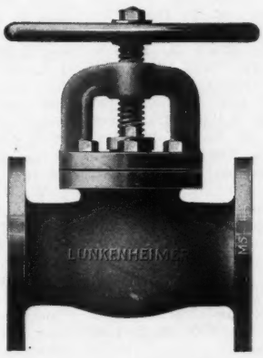
SUMTER COUNTY

B. W. Bates' No. 1 fee, Sec. 3-18-1 ..... U.R. surface csg. at 300 ft.; to set 6-in

WASHINGTON COUNTY

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2 ..... S.D; S.W. flow at 1,450 ft., T.D
S. A. Hobson's No. 1 Wilson, Sec. 27-7-1 ..... S.D. 700 ft.

A chain is no stronger than its weakest link



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American Eagle Fire Ins. Co., New York, N. Y.
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Ben Franklin Underwriters, Pittsburgh, Pa.
Boston Insurance Co., Boston, Mass.
Caledonian Insurance Co., Edinburg, Scotland.
California Insurance Co., San Francisco, Calif.
Camden Fire Insurance Association, Camden, N. J.
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Columbia Insurance Co., Jersey City, N. J.
Commerce Insurance Co., Glens Falls, N. Y.
Commercial Union Assurance Co., London, Eng.
Commercial Union Fire Ins. Co., New York, N. Y.
Jersey Fire Underwriters, Newark, N. J.
Liverpool & London & Globe Ins. Co., Liverpool, Eng.
Mechanics Insurance Co., Philadelphia, Pa.
Mechanics Underwriters, Philadelphia, Pa.
Mercantile Insurance Co., New York, N. Y.
National Ben Franklin Fire Ins. Co., Pittsburgh, Pa.
National Fire Insurance Co., Hartford, Conn.
National Liberty Ins. Co. of America, New York, N. Y.
National Security Fire Ins. Co., Omaha, Neb.
Newark Fire Insurance Co., Newark, N. J.
New Hampshire Fire Ins. Co., Manchester, N. H.
New York Underwriters Ins. Co., New York, N. Y.
Niagara Fire Ins. Co., New York, N. Y.
North British & Mercantile Ins. Co., London, Eng.
Norwich Union Fire Ins. Society, Norwich, Eng.
Occidental Underwriters, San Francisco, Calif.
Old Colony Ins. Co., Boston, Mass.
Palatine Insurance Co., London, Eng.
Patriotic Insurance Co. of America, New York, N. Y.
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AMONG THE PURPOSES FOR WHICH THE OIL INSURANCE ASSOCIATION WAS ORGANIZED

To enable oil operators to secure sufficient dependable insurance to adequately protect their interests.

To furnish property holders and those controlling oil business expert engineering and inspection service, so methods of insuring this class may be standardized, and efficient fire protective devices installed and properly maintained, thereby stabilizing the business to the point which will enable insurance companies generally to accept the class at fair cost and under equitable policy rates.

To make available the most business-like insurance arrangement for all oil companies.

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Connecticut Fire Ins. Co., Hartford, Conn.
Constitution Underwriters, Springfield, Mass.
Continental Insurance Co., New York, N. Y.
County Fire Insurance Co., Manchester, N. H.
Eagle Star & British Dom. Ins. Co., Ltd., London, Eng.
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Girard Underwriters, Philadelphia, Pa.
Glens Falls Insurance Co., Glens Falls, N. Y.
Great American Ins. Co., New York, N. Y.
Hanover Fire Insurance Co., New York, N. Y.
Harmonia Fire Insurance Co., Buffalo, N. Y.
Hartford Fire Insurance Co., Hartford, Conn.
Home Fire & Marine Ins. Co., San Francisco, Calif.
Home Insurance Co., New York, N. Y.
Hudson Insurance Co., New York, N. Y.
Imperial Assurance Co., New York, N. Y.
Insurance Co. of North America, Philadelphia, Pa.
Insurance Co. of State of Pennsylvania, Philadelphia, Pa.
Philadelphia Fire & Marine Ins. Co., Philadelphia, Pa.
Phoenix Assurance Co., London, Eng.
Phoenix Insurance Co., Hartford, Conn.
Providence Washington Ins. Co., Providence, R. I.
Queen Insurance Co., New York, N. Y.
Reliance Insurance Co., Philadelphia, Pa.
Rochester Dept. of Great American, New York, N. Y.
Royal Exchange Assurance Co., London, Eng.
Royal Insurance Co., Ltd., Liverpool, Eng.
Scotch Underwriters, Edinburg, Scotland.
Scottish Union & National Ins. Co., Edinburg, Scotland.
Security Insurance Co., New Haven, Conn.
Sentinel Fire Insurance Co., Springfield, Mass.
Springfield Fire & Marine Ins. Co., Springfield, Mass.
St. Paul Fire & Marine Ins. Co., St. Paul, Minn.
Star Insurance Co. of America, New York, N. Y.
Sun Insurance Office, London, England.
Svea Fire & Life Ins. Co., Gothenburg, Sweden.
Superior Fire Ins. Co., Pittsburgh, Pa.
Travelers Fire Insurance Co., Hartford, Conn.
Union Assurance Society, London, Eng.
Union Insurance Society of Canton, Hong Kong.
United Firemen's Insurance Co., Philadelphia, Pa.
Urbaine Fire Ins. Co., Paris, France.
Westchester Fire Ins. Co., New York, N. Y.
World Fire & Marine Ins. Co., Hartford, Conn.

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H. M. CARMICHAEL, GEN'L MGR.
175 W. Jackson Blvd., Chicago

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Week ending November 6

Carson County

McMan Oil & Gas Co.'s No. 1 L. C. McConnell, 330 feet south and west of the NE cor. of the E half of the SW of Section 187, Block 3, I.&G.N. The Texas Company's No. 3 J. L. Noel, 330 feet north and west of the SE cor. of the NW of Section 187, Block 3, I.&G.N.

Ham Oil Co.'s No. 1 E. Cooper, 330 feet north and east of the SW cor. of the E half of the NE of Section 5, Block 9, I.&G.N. S. D. McElroy's No. 1 B. F. Block, 330 feet south and west of the NE cor. of the NE of the NW of Section 112, Block 4, I.&G.N. The Texas Company's No. 3 J. K. Quinn, 330 feet north and 990 feet east of the SW cor. of the E half of Section 7, Block 9, I.&G.N.

Gray County

Gulf Production Co.'s No. 1 H. M. Barrett, 967 feet north and east of the SW cor. of the NE of Section 131, Block 3, I.&G.N. Gulf Production Co.'s No. 3 G. H. Saunders, 330 feet south and west of the NE cor. of the SW of Section 3, Block 1, A.C.H.&B. Lyon and others' No. 1 J. S. Morse-A, 330 feet north and east of the SW cor. of the NW of the NW of Section 1, Block 26, H.&G.N. McAuley and others' No. 3 J. S. Morse, 330 feet south and east of the NW cor. of the S half of the NE of Section 2, Block 26, H.&G.N. The Texas Company's No. 17 G. H. Saunders, 330 feet south and west of the NE cor. of the W half of the SE of Section 3, Block 1, A.C.H.&B.

Gulf Production Co.'s No. 3 J. M. Saunders, 330 feet south and 990 feet east of the NW cor. of the Gulf Production Co.'s 130-acre lease out of the SW of Section 40, Block 3, I.&G.N. The Texas Company's No 16 G. H. Saunders, 330 feet south and east of the NW cor. of the E half of the SE of Section 3, Block 1, A.C.H.&B. Queen Oil Co.'s No. 1 H. B. Lovett, 330 feet south and east of the NW cor. of the W half of the NE of Section 35, Block B-2, H.&G.N.

Hutchinson County

The Texas Company's No. 4 J. L. Moore, 330 feet south and west of the NE cor. of the SW of Section 125, Block 4, I.&G.N.

Midwest Exploration Co.'s No. 3 J. L. Moore, 330 feet north and 330 feet west of the SE cor. of the NW of Section 125, Block 4, I.&G.N.

Moore County

Canadian River Gas Co.'s No. 1 J. T. Sneed, Jr.-C, 660 feet south and west of the NE cor. of the SW of Section 46, Block 6-T, T.&N.O.

Wheeler County

Martin & Debous' No. 1 I. Close-A, at the C of the SE of the NE of Section 83, Block 23, H.&G.N.

Murchison & Fain's No. 5 I. Close, at the C of the NW of the NW of Section 76, Block 23, H.&G.N. Staley & Wynne's No. 1 C. Hicks, at the C of the NW of the SE of Section 53, Block 17, H.&G.N. Upham Gas Co.'s No. 6 I. Close (Gooch), at the C of the NW of the NW of Section 81, Block 23, H.&G.N.

NORTH CENTRAL AND WEST TEXAS

Week ending November 6

Archer County

Barnsdall Oil Co.'s No. 18 T. B. Wilson-B, 1,350 feet north and 150 feet west of the SE cor. of their lease "B" and located in the B. J. Howard Survey, A-179. L. T. Burns and others' No. 1 J. A. Kemp, 150 feet south and 950 feet west of the NE cor. of the J. A. Kemp 368-acre tract out of the M. Fanning Survey, A-128. J. H. Howell's No. 1 J. B. Miller, 750 feet south and 150 feet east of the NW cor. of Lot 1, Section 19, A.T.N.C.L. F. Hutcheson's No. 2 S. F. Hutcheson, 1,367 feet south and 450 feet west of the NE cor. of Section 142, Club Ranch Subdivision. E. J. Stump and others' No. 1 G. W. Moss, 540 feet north and 150 feet east of the SW cor. of the north 52.72 acres of the south 130 acres of the G. W. Moss 200-acre tract out of Section 1, H.T.&B., A-199. United Production-Perkins & Cullum's No. 1 B. Z. Lyles, 150 feet north and 1,325 feet east of the SW cor. of Section 2, S.P.R.R., A-1,231. Consolidated Oil Co.'s No. 1 E. Bearden, 150 feet east of the middle of the west line of the east 50 acres of the north 60 acres of the south 100 acres of the W half of the John Riley Survey No. 3, A-364.

Douglas Oil Co.'s No. 4 W. J. McClure, 2,357 feet north and 496 feet east of the SW cor. of Section 13, Crawford Subdivision. J. A. Gardner and others' No. 1 G. B. Hamilton, 150 feet south and east of the NW cor. of the south 90 acres of the E half of Section 8, B.B.B. &C., A-981. Goldsmith and others' No. 3 O. Deitrich, 150 feet south and 450 feet west of the NE cor. of the east 11 acres of the north 31 acres of the NE of Section 4, B.B.B.&C., A-1,700. M. & V. Oil Co.'s No. 4 G. A. Lauster, 450 feet north and west of the SE cor. of the SW of Section 3, B.B.B.&S., A-51. Moran-Golding & Cochran's No. 1 W. E. Brown & Smith, 150 feet north and west of the SE cor. of the north 90 acres of Section 24, G. P. Meade Subdivision, L. M. Pasture. Peacock & Tedford's No. 1 Mrs. G. Williams, 450 feet north and 900 feet east of the SW cor. of the M. L. Swing Survey, A-450.

Consolidated Oil Co.'s No. 1 Kemp & Kempner, 150 feet south and west of the NE cor. of Lot 3, Block 5, Kemp Wichita Valley Land. Shappell Oil Co.'s No. 13 J. D. Lyles, 150 feet north and 450 feet east of the SW cor. of the NW of the NE of Section 7, Hooper & Wade Survey A-234. W. D. Cline and others' No. 1 L. M. Hayter, 750 feet south and 450 feet east of the NW cor. of the north 100 acres of the west 160 acres of Section 2,423, T.E.&L. Consolidated Oil Co.'s No. 2 W. O. Wright-B, 150 feet north and 918 feet west of the SE cor. of the NE of Section 2,435, T.E.&L.

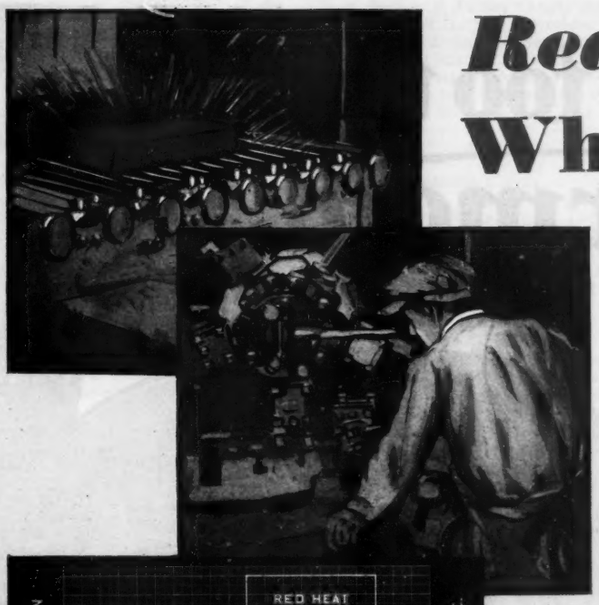
W. R. Duke and others' No. 1 J. A. Young, 150 feet north and west of SE cor. of N half of Section 2,426, T.E.&L. Key & Leath's No. 1 W. J. Logan, 150 feet north and 1,320 feet east of the SW cor. of the J. M. Taylor Survey No. 23, A-651. Madden & Stump's No. 1 G. W. Vernon, 1,250 feet north and 150 feet east of the SW cor. of the G. W. Vernon 150-acre tract out of the J. Standerford Survey, A-394. Petroleum Production Co. and others' No. 13 A. M. Kunkel-B, 150 feet north and 2,136 feet west of the SE cor. of their 40-acre lease out of the B.B.B.&C. Survey No. 3, A-51.

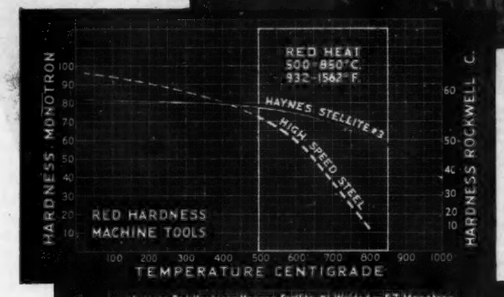
Brewster County

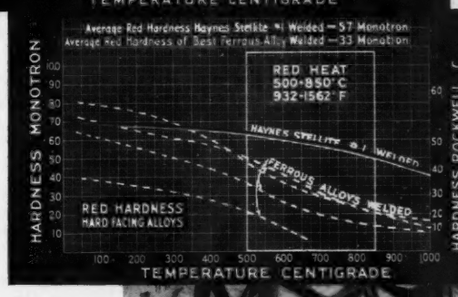
J. C. Grastorf and others' No. 1 O. M. Redfield, 920 feet south and 2,500 feet west of the NE cor. of Section 18, Block G-15, G.C.&S.F.

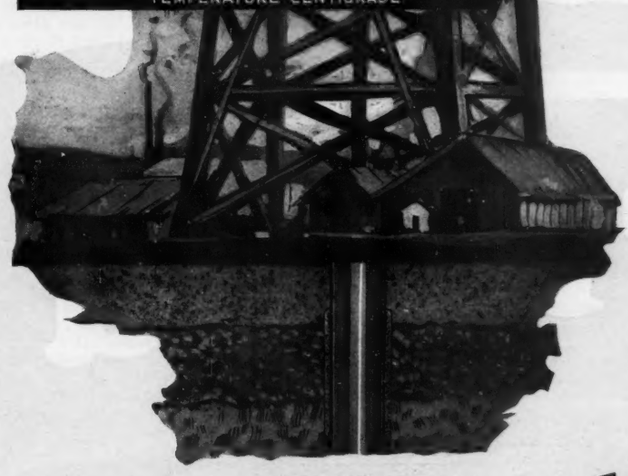
Brown County

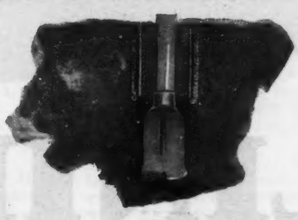
M. T. Anderson's No. 1 W. B. Trammel, 450 feet north and 850 feet west of the SE cor. of the F. D. Stewart Survey, A-2,104. G. A. Buder's No. 7 S. C. Kessler, 1,010 feet north and 150 feet west of the SE cor. of his 20-acre lease out of Section 42, H.T.&B. G. A. Buder's No. 8 Kessler, 1,050 feet north and 150 feet east of the SW cor. of his 20-acre lease out of Section 42, H.T.&B. G. A. Buder, trustee's No. 6 N. E. Munselle, 150 feet south and 1,125 feet west of the NE cor. of his 80-acre lease out of the W. Ahrenbeck Survey No. 3, A-20. A. B. Gordon and others' No. 4 S. B. Cannon-A, 450 feet north and 150 feet west of the SE cor. of their 40-acre lease out of the W. Ahrenbeck & Brother Survey No. 3, A-20. Humble Oil & Refining Co.'s No. 1 J. M. Carter, 150 feet south and 123 feet west of the SW cor. of the J. McGloin Survey, A-668, being 150 feet south and 123 feet west of the NE cor. of the J. M. Carter 15-acre Survey. Humble Oil & Refining Co.'s No. 4 N. E. Munselle, 150 feet south and











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HAYNES STELLITE is harder at a red heat than any other alloy or metal in common use.

The curves show comparative tests between cutting tools of Grade 3 Haynes Stellite and hardened high speed steel, and between Stellited steel and steel hard faced with four other hard facing alloys now on the market. The curves express absolute hardness; and show that Haynes Stellite has an average hardness over the red range at least 75% higher than the other alloys recommended for the same purpose.

The alloys containing appreciable amounts of iron do not have high red hardness.

This superiority of Haynes Stellite is due to its composition. It is a non-ferrous alloy and its red hardness is largely due to its patented cobalt base. Haynes Stellite is self hardening, and returns to its original hardness on cooling.

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Unit of Union Carbide and Carbon Corporation

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Thermoid

BRAKE LINING

THERMOID RUBBER COMPANY - *Factories and Main Offices* - TRENTON, N. J.

1,085 feet west of the NE cor. of the N. E. Munselle tract out of the W. Ahrenbeck & Brother Survey No. 3, A-20. McGahey and others' No. 1 R. H. Mauldin, 150 feet south and 1,170 feet east of the NW cor. of the R. H. Mauldin 171-acre tract out of the S.A.&M.G. Survey No. 1, A-849. E. L. Smith Oil Co.'s No. 10 L. A. George, 1,950 feet north and 150 feet east of the SW cor. of the L. A. George tract out of Section 42, H.T.&B. Same company's No. 11 L. A. George, 2,250 feet north and 150 feet east of the SW cor. of the L. A. George tract out of Section 42, H.T.&B. Same company's No. 2 S. C. Kessler, 450 feet north and 150 feet west of the SE cor. of the west 70 acres of the north 90 acres of the S. C. Kessler tract out of Section 42, H.T.&B.

G. A. Bruder, trustee's No. 7 N. E. Munselle, 150 feet south and 1,425 feet west of the NE cor. of his 80-acre lease out of Section 3, W. Ahrenbeck & Brother Survey, A-20. Gilman & McMurray and others' No. 21 A. B. Teston, 450 feet north and 750 feet west of the SE cor. of the A. B. Teston 136-acre tract out of the W. B. Smith Survey No. 155. W. D. Gulley's No. 1 Mrs. A. Armstrong, 1,450 feet north and 170 feet west of the SE cor. of Section 1, H.& G.N., A-1,217. S. B. Owens, Inc. and others' No. 7 S. B. Cannon, 450 feet north and 750 feet west of the SE cor. of their 120-acre lease out of Section 3, W. Ahrenbeck & Brother Survey, A-20. The Texas Company's No. 11 S. C. Kessler, 465 feet north and 450 feet west of the SE cor. of their 60-acre lease out of Section 42, H.T.&B. Texcal Oil Co.'s No. 2 L. Martin-B, 150 feet south and 1,513 feet east of the most westerly NW cor. of the L. Martin 180-acre tract out of Section 11, H.T.&B. Same company's No. 3 W. E. Martin heirs, 150 feet north and 450 feet east of the SW cor. of the W. E. Martin heirs 43-acre tract out of Section 11, H.T.&B. Same company's No. 4 W. E. Martin heirs, 150 feet north and east of the SW cor. of the W. E. Martin heirs 43-acre tract out of Section 11, H.T.&B. Winsor and others' No. 1 O. Pierce, 150 feet north and west of the SE cor. of the N half of the SE of Section 44, T.&N.O.

Callahan County

E. P. Campbell and others' No. 1 I. N. Jackson, 4,120 feet north and 2,060 feet east of the SW cor. of Section 20, E.T.R.R.

Coleman County

Acrey Brothers' No. 1 J. K. Baker, 1,050 feet north and 150 feet east of the SW cor. of the N half of the C. C. Bruff Survey No. 250.

Eastland Oil Co.'s No. 1 Griffin, 200 feet north and 250 feet east of the SW cor. of the I. N. Griffin 148-acre tract out of the J. H. Wood Survey No. 483. Morrison & St. John's No. 2 L. V. Eddington, 2,790 feet north and 1,128 feet east of the SW cor. of the Victoria County School Land No. 187. L. Smith's No. 9 J. P. Morris, 126 feet south and 2,670 feet west of the NE cor. of the J. H. Wood Survey No. 483. Tower & McKanna's No. 8 J. J. Crowder, 420 feet south and 450 feet east of the NW cor. of their 40-acre lease out of the J. H. Wood Survey No. 483. Vacuum Oil Co. and others' No. 4 L. Weaver, 3,823 feet south and 3,110 feet west of the NE cor. of the A. Gabel Survey No. 271. Same company's No. 5 L. Weaver, 3,383 feet south and 3,550 feet west of the NE cor. of the A. Gabel Survey No. 271. Dozier & Humphrey's No. 2 J. McAdams, 150 feet south and 1,000 feet west of the NE cor. of the Charles Shanks Survey No. 243, A-61. H. G. Gwinnup and others' No. 1 H. E. Campbell, 340 feet north and 200 feet west of the SE cor. of the SW of Section 75, Block 1, G.H. &H. Joines and others' No. 1 S. C. Stewardson, 450 feet south and 1,430 feet west of the NE cor. of Section 96.

Clay County

R. T. Belcher and others' No. 6 H. C. Evans and others, 150 feet north and 810 feet west of the SE cor. of Section 6, Parker County School Land, A-374. Mid-Continent Holding Corp.'s No. 2 J. D. Stine and others-D, 150 feet north and 750 feet east of the SW cor. of the NE of Section 7, Parker County School Land, A-374. J. L. Art and others' No. 2 G. W. Byers & Co., 150 feet north and 489 feet east of the SW cor. of the NW of Section 16, Byers Brothers Subdivision. Hickman & Heydrick and others' No. 1 G. W. Byers & Co., 150 feet south and east of the NW cor. of the SW of Section 16, Byers Brothers Subdivision.

Comanche County

Humble Oil & Refining Co.'s No. 1 J. A. Walker, 660 feet south and 181 feet east of the NW cor. of the J. H. Shelton Survey No. 283.

S. A. Hopkins and others' No. 1 O. W. Capers, 150 feet south and 482 feet east of the NW cor. of the NE of Section 44, Block 2, H.&T.C.

Cooke County

Coline Oil Co.'s No. 5 J. F. Huggins, 150 feet south and 1,350 feet west of the NE cor. of their 56-acre lease out of the S.P.R.R. Survey No. 9, A-982.

R. F. Smith and others' No. 1 J. W. Dickerson, 2,247 feet north and 2,278 feet east of the SW cor. of the W. C. Brown Survey, A-103.

Crane County

Republic Production Co.'s No. 1 E. S. Hughes Co., 990 feet southeast of the northwest line and 1,100 feet west of the east line of the J. A. Prater Survey No. 2, A-969, being 990 feet southeast of the northwest line and 1,650 feet east of the NW cor. of their lease.

Crockett County

California Co.'s No. 1 J. M. Shannon, Lease 3, 1,663 feet north and 2,323 feet west of the SE cor. of Section 42, T.C.R.R.

Empire Gas & Fuel Co.'s No. 1 J. M. Shannon, 330 feet south and west of the NE cor. of the S half of the SW of Section 42, T.C.R.R.

Denton County

Fain-McGaha & McMeans' No. 1 P. Miller, 2,100 feet south and 3,400 feet east of the most northerly NE cor. of the J. W. Gibbins Survey and located in the heirs A. H. Lynde Survey, A-777, being 150 feet north and west of the SE cor. of the west 100 acres of the P. Miller 146-acre tract.

Eastland County

R. L. Looker's No. 1 J. W. Cauble, 150 feet north and west of the SE cor. of the W. Mitchell Survey. Whiteside Brothers' No. 2 L. E. Murrell and others, 450 feet north and 150 feet west of the SE cor. of the SW of the SW of Section 29, Block 2, H.&T.C.

S. A. Hopkins' No. 1 Rio Bravo Oil Co., 128 feet north and 1,356 feet east of the SW cor. of the NE of Section 43, Block 4, H.&T.C. Texwa Oil Co. and Kirk's No. 2 L. Palmer, 150 feet north and east of the SW cor. of the SE of the SE of Section 29, Block 2, H.&T.C. Same company's No. 5 J. S. Turner, 450 feet north and 785 feet west of the SE cor. of the NE of the NW of Section 30, Block 2, H.&T.C.

Ector County

R. R. Penn and others' No. 1 R. L. York, 330 feet south of the middle of the north line of Section 16, Block 44, Township 3-S, T.&P.

Garza County

Pandem Oil Corp.'s No. 1 K. Stokes, 2,310 feet north and east of the SW cor. of Section 32, Block 5, G.H.&H.

Howard County

American Maracaibo Co.'s No. 2 W. R. Settles-B, 990 feet north and 2,310 feet east of the SW cor. of Section 135, Block 29, W.&N.W.R.R. California Co.'s No. 9 D. Roberts, Lease 2, 330 feet south and west of the NE cor. of Section 156, Block 29, W.&N.W.R.R. Humble Oil & Refining Co.'s No. 7 H. R. Clay, 1,650 feet north and 330 feet east of the SW cor. of Section 138, Block 29, W.&N.W. R.R. Same company's No. 8 H. R. Clay, 330 feet south and 1,650 feet east of the NW cor. of Section 138, Block 29, W.& N.W.R.R.

California Co.'s No. 4 D. Roberts, Lease 1, 1,650 feet north and 2,197 feet west of the SE cor. of Section 137, Block 29, W.&N.W.R.R. Godley Oil Co.'s No. 7 A. J. Hooks, 2,440 feet south and 1,050 feet east of the NW cor. of Section 140, Block 29, W.&N.W.R.R. Humble Oil & Refining Co.'s No. 6 H. R. Clay,

SKINNER

Pipe Joint Clamp

for stopping any thread leak at tee, elbow, flange, gate, coupling or master gate under any pressure or temperature.

In stock at all supply stores.

The Skinner Pipe Joint Clamp stops the leak at its source on gas, oil, steam, water or hot oil. Strong, sure and permanent. Can be put on under pressure. In universal use in the oil and gas industry. Made of malleable iron.

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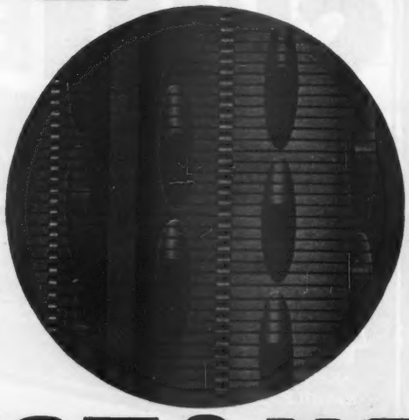

Enlarged section showing Keystone Wires passing over Grooved Openings.

KEYSTONE WIRE WRAPPED MILLED GROOVE Oil Well Screen Avoids "Sand Cutting"

The famous *Layne Keystone Wire Wrapped Milled Groove Screen*, which prevents *sand cutting*, is a fully patented invention and cannot be copied!

Leading operators abroad and in this country know the value of screens being wrapped with Keystone wires, and, consequently, are users of the *Greater Production Keystone Wire Wrapped Milled Groove Screen*, oil industry's practical and exclusive invention which increases production from *33-1/3% to 100%*.

From ten to twelve wraps of wire pass over each groove, excessive flow over the drilled holes is avoided as a uniform feed of the fluid through the outer openings of the screen is continually fed through the drilled holes from the entire surface of the screen. This avoids the possibility of *sand cutting*, which is occasioned by excessive velocity of fluid entering at any one point. Drainage distance between the Keystone Wires is very short, eliminating the possibility of openings becoming clogged with mud or sand.

You are assured maximum and most satisfactory performance with *Layne Keystone Wire Wrapped Milled Groove Screen.*

—Install now instead of later!

The Layne & Bowler Co.

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Increases Production

The Layne New York Co. 30 Church St., New York
The Layne & Bowler Corp. Los Angeles, Cal.
Vickers, Limited London, England

LEADERSHIP IN SCREEN MANUFACTURE FOR MORE THAN A QUARTER CENTURY

330 feet north and east of the SW cor. of Section 138, Block 29, W.&N.W.R.R. Ward Oil Co.'s No. 20 D. Roberts, 1,650 feet north and 2,220 feet east of the SW cor. of Section 137, Block 29, W.&N.W. R.R.

Irion County

Cromwell and others' No. 1 H. C. Fuller, 2,134 feet north and 631 feet west of the SE cor. of Section 81, Block 1, H.&T.C.

Jack County

Brazos River Gas Co.'s No. 2 W. L. Keyser, 400 feet north and west of the SE cor. of the west 100 acres of the W. L. Keyser 117-acre tract out of the Thomas Toby Survey, A-849. Panhandle Refining Co.'s No. 3 Eaton & Daniels, 776 feet north and 150 feet west of the SE cor. of their 150-acre lease out of the I. Hughson Survey, A-256.

Jones County

Mid-Tex Oil & Gas Co.'s No. 1 W. A. Minter, 765 feet south and 607 feet west of the northeast corner of the northwest 86 acres of Section 41, Block 15, T.&P. Survey.

Montague County

Arco Oil Co.'s No. 2 Mrs. M. H. Salmon-D, 150 feet south and east of the northwest corner of its 50-acre lease "D," out of the F. Robertson Survey, A-620.

Arco Oil Co.'s No. 1 Mrs. M. H. Salmon-D, 250 feet south and 150 feet east of the NE cor. of the W. P. Zuber Survey A-887, and located in the F. Robertson Survey, A-620, being 450 feet south and 150 feet east of the NW cor. of their 50-acre lease.

Palo Pinto County

Burton-McKee Oil Corp.'s No. 7 Strawn Coal Co., 5,500 feet north and 1,625 feet west of the southeast corner of the A. Ashworth Survey, A-1.

Prairie Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 D. G. Vick, 1,467 feet southwest of the northeast, 1,352 feet northwest of the southeast line of the L. L. Pitts Survey, A-1,289.

Prairie Oil & Gas Co. and Montgomery's No. 1 T. M. Carter, 1,534 feet north and 6,050 feet east of the SW cor. of the M. W. Luckey Survey, A-289. F. Walker's No. 1 M. W. Smith, 550 feet north and 1,000 feet west of the SE cor. of Section 82, Burleson County School Land, League 3. Wickens and others' No. 1 L. Ames, 150 feet north and 600 feet east of the SW cor. of the north 122 acres of Section 81, Burleson County School Land, League 3.

Pecos County

Harrison & Cromwell's No. 1 White-Baker Co., 2,310 feet north and west of the SE cor., Section 42, Block 11, H. &G.N. Survey. Independent Oil & Gas Co. and others' No. 1 J. W. Phelps, 150 feet south and east of the NW cor. N half NE, Section 26, Block 11, H.&G.N. Survey. Phillips Petroleum Co.'s No. 3 W. Courtney, 365 feet south and 440 feet east of the NW cor., Section 78, Block O.W, T.M.R.R. Survey. Gulf Production Co.'s No. 26 Yates, 1,700 feet north and 8,027 feet east of the southwest corner of Runnels County School Land Survey, A-2,169.

Humble Oil & Refining Co.'s No. 1 J. C. and D. H. Cunningham, at the C of the SW of Section 34, Block 11, H. &G.N. Landreth Production Corp.'s No. 3 University-C, 330 feet south and 380 feet east of the NW cor. of the NW of the SW of Section 31, Block 16, University Land. Landreth Production and Henshaw Brothers' No. 3 University-E, 330 feet south and west of the NE cor. of the SW of the NE of Section 13, Block 18, University Land. Landreth Production and Henshaw Brothers' No. 1 University-F, 330 feet north and west of the SE cor. of the NE of the SW of Section 31, Block 16, University Land. Landreth Production and Henshaw Brothers' No. 2 University-I, 330 feet south and west of the NE cor. of Section 24, Block 18, University Land.

Runnels County

Gibson & Johnson's No. 1 D. O. Johnson, 2,310 feet north and 1,650 feet west of the SE cor., Section 150, E.T.R.R. Survey.

Reagan County

Big Lake Oil Co.'s No. 174 University, 2,240 feet south and west of the NE cor. of Section 25, Block 9, University Land. Same company's No. 175 University, 400 feet south and 2,240 feet west of the NE cor. of Section 35, Block 1, University Land. Same company's No. 176 University, 2,240 feet north and 1,720 feet west of the SE cor. of Section 1, Block 2, University Land. Same company's No. 177 University, 2,240 feet south and 1,720 feet west of the NE cor. of Section 12, Block 2, University Land. Same company's No. 178 University, 920 feet south and 400 feet east of the NW cor. of Section 1, Block 2, University Land. Same company's No. 179 University, 1,720 feet north and 1,320 feet east of the SW cor. of Section 25, Block 9, University Land. Texon Oil & Land Co.'s No. 2-B University Land Group 1, 4,655 feet north and 250 feet east of the SW cor. of Section 36, Block 9, University Land. Texon Oil & Land Co.'s No. 3-B University Land Group 1, 2,240 feet north and 920 feet east of the SW cor. of Section 36, Block 9, University Land.

Shackelford County

Callihan & Carter's No. 1 W. Hatcher, 150 feet south and 900 feet west of the NE cor. NW, Section 17, Blind Asylum land. Carter Development Co.'s No. 1 J. H. Nail, Section 66, 150 feet south and west of the NE cor. NW, Section 66, Block 10, E.T.R.R. Survey. Dull-Earls-The Texas Company's No. 4 J. B. Matthews-B, 150 feet south and 735 feet west of the NE cor. NE SE, Section 32, Block 10, E.T.R.R. Survey. Engle Brothers' No. 5 J. B. Matthews-A, 475 feet north and 165 feet east of the SW cor. NW NW, Section 29, Block 10, E.T.R.R. Survey. P. French's No. 1 Dawson and others (Section 182), 2,000 feet south and 660 feet west of the NE cor., Section 182, Block 10, E.T.R.R. Survey. Googan and others' No. 1 J. S. Scott, 728 feet south and 1,795 feet east of the southwest corner of the C. Cosner Survey No. 26, and located in the C. A. Hardin Survey. Moutray Oil Co.'s No. 2 J. H. Nail, 1,020 feet north and 960 feet west of the SE cor., Section 40, Block 10, E.T.R.R. Survey. Scott & Walker's No. 1 F. W. Alexander, 150 feet northeast of the southwest line and 150 feet northwest of the southeast line of the northwest 40 acres of Section 578, T.E.&L. Survey.

J. W. Ducker's No. 1 J. B. Matthews, 1,070 feet southwest of the northeast line and 150 feet southeast of the northwest line of the southeast 80 acres of the northeast 160 acres of Section 584, T.E.&L. Frizzell & Smalley's No. 2 F. W. Alexander, 750 feet northeast of the southwest line and 783 feet northwest of the southeast line of Section 580, T. E.&L. Hart & Wright's No. 1 A. A. Clark, 870 feet south and 570 feet east of the NW cor. of the NE of Section 2, Blind Asylum Land. Hughes and others' No. 2 G. R. Davis, 660 feet north and east of the SW cor. of Section 47, Block 13, T.&P. A. D. Robinson's No. 1 Black Brothers, 150 feet northeast of the southwest line and 150 feet southeast of tre northwest line of Section 508, T.E.&L.

Stephens County

Lone Star Gas Co.'s No. 1 D. N. Ellis, 1,500 feet south and 200 feet west of the northeast corner of the Hrs. O. Bailey Survey.

J. B. Dale's No. 4 T. F. Litton, 950 feet north and 750 feet west of the SE cor. of the SW of Section 68, Block 4, T.&P.

Terrell County

Transcontinental Oil Co.'s No. 1 M. H. Goode, 330 feet north and 2,152 feet west of the SE cor. of Section 26, Block 161, G.C.&S.F.

Throckmorton County

Shappell Oil Co.'s No. 5 Upshur County School Land, 150 feet south and east of the NW cor. of Lot 27, Upshur County School Land, A-825.

Tom Green County

Fuhrman Petroleum Corp.'s No. 1 Lewis & Wardlaw, 1,528 feet south and 694 feet west of the SE cor. of the J. Gable Survey No. 834 and located in the C. E. Locke Survey.

Upton County

Humble Oil & Refining Co.'s No. 13 R.

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Ricker, 1,960 feet southeast of the northwest line and 3,630 feet southwest of the northeast line of Section 5, M. S. Denton Survey, A-127. Pure Oil Co.'s No. 3 Edward S. Hughes & Co., 150 feet south and 767 feet east of the northwest corner of its 300-acre lease out of Section 4, William Teer Survey, A-806.

Gulf Production Co.'s No. 3 Ed S. Hughes Co.-B, 160 feet north and 161 feet west of the most southerly SE cor. of G.P.O.'s 200-acre lease "B" out of William Teer Survey No. 4, A-806.

Ward County

Penn and Atlantic Oil Producing Co.'s No. 1 J. E. Cooper, 330 feet southwest of the northeast line and 990 feet southeast of the northwest line of Section 43, Block 34, H.&T.C. Survey.

Wichita County

Star Drilling Co.'s No. 3 R. L. Crudup-B, 637 feet south and 400 feet east of the NW cor., Section 10, Denton County School Land, League 4, A-417. Arkansas Fuel Oil Co.'s No. 23 Kemp & Kempner-A, 530 feet south and 150 feet east of the northeast corner of Block 45, Kemp Wichita Valley Land, and located in Block 82, being 530 feet south and 150 feet east of the most westerly northwest corner of their lease. Arkansas Fuel Oil Co.'s No. 24 Kemp & Kempner-A, 155 feet north and 220 feet west of the most southerly southeast corner of its lease out of Block 82, Kemp Wichita Valley Land. Bridwell Oil Co.'s No. 5 S. B. Burnett and others, 2,490 feet south and 870 feet east of the NW cor., Section 3, H.T.&B. Survey, A-132. G. W. Couper's No. 1 Foster & Allen, 150 feet south and east of the NW cor., Section 1, H.T.&B. Survey, A-129. Panhandle Refining Co.'s No. 12 T. L. Burnett and others-A, 450 feet south and 150 feet west of the NE cor. SE, Section 6, S.A.&M.G. Survey, A-464. Sheldon and Ven-Mex Oil Co.'s No. 1 M. M. Robinson, administratrix, 150 feet north and east of the SW cor., Section 310, Waggoner Colony Subdivision. Same company's No. 3 C. H. Whitteubach, 150 feet south and west of the NE cor., Section 303, Waggoner Colony Subdivision. Sheldon-Lowry-Prichard & Bolding's No. 1 S. P. Gibson, 150 feet north and west of the SE cor., Section 320, Waggoner Colony Subdivision.

Hi-Land Oil Co. and others' No. 1 W. H. Chilson, 150 feet north and 1,050 feet east of the SW cor. of Section 5, Denton County School Land, League 4, A-417. Mid-Continent Holding Corp.'s No. 4 M. G. Wilkerson and others, 450 feet south and 150 feet east of the NW cor. of the M. G. Wilkerson and others' 69.97-acre tract out of Section 3, J. M. McCool Survey A-192. Same corporation's No. 5 Wilkerson and others, 450 feet south and 528 feet east of the NW cor. of the M. G. Wilkerson and others' 69-97-acre tract out of Section 3, J. M. McCool Survey A-192. Same corporation's No. 6 Wilkerson and others, 450 feet south and 828 feet east of the NW cor. of the M. G. Wilkerson and others' 69.97-acre tract out of Section 3, J. M. McCool Survey A-192. McCarty Oil Co.'s No. 3 Kemp & Kempner, 100 feet north and 750 feet west of the SE cor. of Block 82, Kemp Wichita Valley Land. Same company's No. 4 Kemp & Kempner, 100 feet north and 1,050 feet west of the SE cor. of Block 82, Kemp Wichita Valley Land. Same company's No. 5 Kemp & Kempner, 100 feet north and 1,350 feet west of the SE cor. of Block 82, Kemp Wichita Valley Land. Merrick Drilling Co.'s No. 1-Deep J. A. Fisher, 1,500 feet north and 2,550 feet west of the SE cor. of Section 24, H.&G.N., A-399. The Texas Company's No. 370 W. T. Waggoner, 630 feet south and 1,030 feet west of the NE cor. of Section 1, G.C.&S.F., A-531. Underwood Drilling Co.'s No. 1 B. N. Ferguson, 150 feet south and east of the NW cor. of the S half of Lot 14, D.I.&C. Survey A-712.

Wilbarger County

L. G. Bradstreet Co.'s No. 4 W. T. Waggoner-C, 205 feet south and 1,627 west of the NE cor. of Section 31, Block 4, H.&T.C. Empire G. & F. Co.'s No. 25 W. T. Waggoner-B, 812 feet north and 205 feet east of the SW cor. of the NW of the SW of Section 32, Block 4, H.&T.C. Empire Gas & Fuel Co.'s No. 17 W. T. Waggoner-C, 305 feet south and 205 feet west of the NE cor. of the SE of the NW of Section 25, Block 4, H.&T.C. Same company's No. 18 Waggoner-C, 205 feet north and west of the SE cor. of the NW of Section 25, Block 4, H.&T.C. Fain-McGaha Oil Corp.'s No. 15 Waggoner-L, 1,545 feet north and 205 feet west of the SE cor. of their 200-acre lease out of Section 31, Block 4 H.&T.C. Golding-Cochran and others' No. 3 Waggoner-K, 205 feet south and 505 feet east of the NW cor. of the NE of SW of Section 4, Block 17, H.&T.C. Gray Back Development Co.'s No. 2 W. T. Waggoner-Allman, 3,090 feet south and 3,765 feet east of the NW cor. of Section 40, M.E.P.&P. Same company's No. 2 Waggoner-King, 150 feet north and 450 feet east of the SW cor. of the S half of the NW of the NW of Section 36, Block 2, H.&T.C. Same company's No. 3 Wagoner-Smith, 205 feet north and east of the SW cor. of Section 49. Block 2, H.&T.C. Hamilton & Martin's No. 1 M. J. George, 150 feet south and west of the NE cor. of the south 30 acres of the W half of the northeast 80 acres of the M. J. George tract out of Section 29, J. Poitevent Survey A-532. L. P. Hammond's No. 1 S. A. Dill and others, 150 feet north and east of the SW cor. of the E half of the SE of the SE of Section 82, Block 14, H.&T.C. Lewis Production Co.'s No. 9 Waggoner-B, 150 feet north and east of the SW cor. of the NE of the NW of Section 8, Block 4 H.&T.C. Same company's No. 10 Waggoner-B, 150 feet north and 490 feet west of the SE cor. of the NE of the NW of Section 8, Block 4, H.&T.C. Hi-Land Oil Co.'s No. 2 M. J. George, 150 feet south and east of the NW cor. of the NE of the NE 80 acres of the M. J. George, trustee, out of Section 29, J. Poitevent Survey A-532. Staley-Wynne & Co.'s No. 6 Waggoner-E, 215 feet south and 610 feet east of the NW cor. of the SW of the NE of Section 25, Block 4, H.&T.C. Same company's No. 16 Waggoner-G, 949 feet south and 205 feet east of the NW cor. of the W half of the SE of Section 32, Block 4, H.&T.C. Same company's No. 3 Waggoner-S, 205 feet south and west of the NE cor. of the SE of the SW of Section 25, Block 4, H.&T.C. The Texas Company's No. 365 W. T. Waggoner, 2,378 feet north and 660 feet east of the SW cor. of Section 39, Block 4, H.&T.C. Ven-Mex Oil Co.'s No. 4 Waggoner-F, 450 feet south and 150 feet east of the NW cor. of the SE of the NW of Section 8, Block 4, H.&T.C. E. P. Waggoner's No. 4 Waggoner, 205 feet south and 255 feet east of the NW cor. of the NW of Section 18, Block 4, H.&T.C. Waggoner Refining Co.'s No. 13 Waggoner-J, 710 feet south and 205 feet west of the NE cor. of the NW of the NE of Section 25, Block 4, H.&T.C. Same company's No. 14 Waggoner-J, 205 feet south and 760 feet east of the NW cor. of the NW of the NE of Section 25, Block 4, H.&T.C. Same company's No. 1 Waggoner-P, 150 feet south and 1,330 feet west of the NE cor. of Section 35, Block 2, H.&T.C. Same company's No. 2 Waggoner-P, 450 feet south and 1,330 feet west of the NE cor. of Section 35, Block 2, H.&T.C.

Young County

Allday & Beavers' No. 1 C. W. Johnson, 150 feet south and west of the NE cor. of Lot 6 Edward W. Sergeant Survey A-253. Bridwell Oil Co.'s No. 5 F. M. Culler's, 150 feet north and east of the SW cor. of the NE of the SE of Section 2, C.T.R.R. R. Campbell and others' No. 2 R. Campbell, 320 feet south and 450 feet west of the NE cor. of the south 60 acres of the E half of Section 1,376, T.E.&L. 2Combs & Rogers' No. 1 E. M. Eichelberger, 150 feet south and east of the NW cor. of Section 1,472, T.E.&L. Cox & Mayer and others' No. 1 J. W. Cox, 450 feet north and 150 feet west of the SE cor. of Section 13, Young County School Land, A-1,284. Goldsmith & King Royalty Co.'s No. 3 H. O. Kunkel, 750 feet south and 150 feet east of the NW cor. of the S half of the west 80 acres of the H. O. Kunkel 252-acre tract out of the G. W. Stell Survey A-256. Holbrook & Wood's No. 5 J. W. Dean, 150 feet north and west of the SE

32

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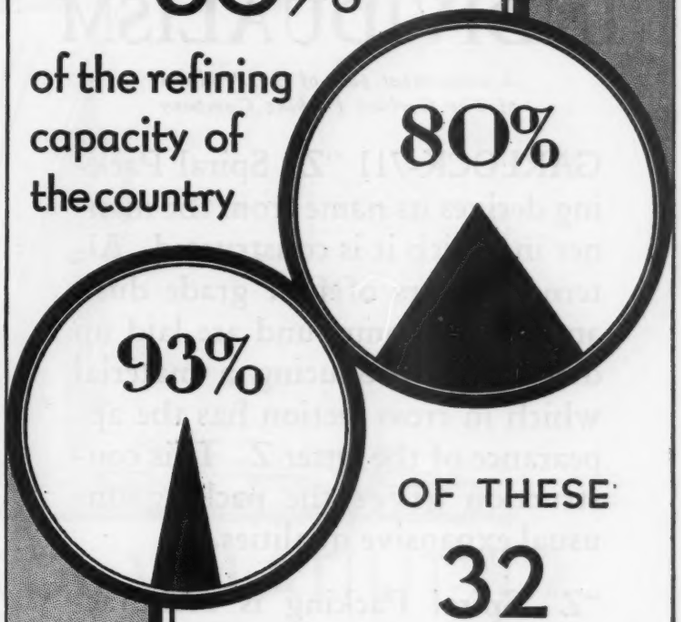

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cor. of Section 19, Young County School Land, A-1,284. D. O. Johnson and others' No. 1 W. E. Edwards, 150 feet south and west of the NE cor. of Section 71, T.E.&L. W. H. Junker's No. 1 J. E. Boley, 783 feet south and 1,383 feet east of the NW cor. of Section 194, T.E.&L. Nicks & Stump's No. 1 W. B. Bailey, 150 feet south and 130 feet west of the NE cor. of the north 40 acres of the west 160 acres of Section 165, T.E.&L. Panhandle Refining Co.'s No. 4 Prideaux-D, 2,140 feet north and 1,150 feet east of the SW cor. of the L.&G.N. Sur., A-1,324. Perkins & Cullum's No. 5 J. L. Lemmond, 2,750 feet north and 1,800 feet west of the SE cor. of Section 1, B.B.B. &C., A-35. Reed & Wootten and others' No. 1 A. J. Fisher, 150 feet south and west of the NE cor. of the A. C. Casey Survey A-7,076. Riggs & Williams' No. 2 J. F. Shatto, 450 feet south and 1,050 feet west of the NE cor. of the S half of Section 1,916, T.E.&L. Sun Oil Co.'s No. 13 O. Deitrich 450 feet south and 150 feet west of the NE cor. of their 114-acre lease out of Section 4, B.B.B. &C, A-1,700. The Texas Company's No. 3 G. P. Stewart-B, 450 feet south and 750 feet west of the NE cor. of the G. P. Stewart 110-acre tract out of Section 1, B.B.B.&C., A-35. United Production Co.'s No. 3A. M. Kunkel and others, 750 feet north and 150 feet east of the SW cor. of their 63.8-acre lease out of the G. W. Stell Survey A-256. C. C. Williams' No. 1 J. Price, 150 feet north and east of the SW cor. of Section 257, T.E.&L. Wise & Jackson's No. 4 F. M. Cullers, 150 feet north and 450 feet west of the SE cor. of the NW of the SE of Section 2, C.T.R.R. Baker & Pardee's No. 1 W. Donnell, 150 feet south and 200 feet east of the NW cor. of the G. Bellah Survey A-1,573. Pitzer & West's No. 6 J. E. Morrison-A, 1,066 feet north and 901 feet east of the SW cor. of the B. W. Hammond Survey A-1,320.

Young County

Goldsmith and King Royalty Co.'s No. 4 H. O. Kunkel, 1,050 feet north and 150 feet west of the southeast corner of the south half of the west 80 acres of the H. O. Kunkel 252-acre tract out of the G. W. Stell Survey, A-256. Same company's No. 5 H. O. Kunkel, 750 feet north and 150 feet west of the southeast corner of the south half of the west 80 acres of the H. O. Kunkel 252-acre tract out of the G. W. Stell Survey, A-256. Madden & Hunt's No. 2 H. O. Kunkel, 450 feet north and 150 feet east of the southwest corner of the east 20 acres of the south 40 acres of the east 84 acres of the west 164 acres of the H. O. Kunkel 252-acre tract out of the G. W. Steil Survey, A-256.

Corrections

In Crockett County: Young & Donnelly's No. 1 J. M. Shannon (Powell), 983 feet north and 2,323 feet west of the SE cor., Section 42, T.C.R.R. Survey.

In Brown County: Humble Oil & Refining Co.'s No. 3 R. Hickman-B, 150 feet south and 500 feet east of the southwest corner of the J. McGloin Survey, A-668, being 150 feet south and 500 feet east of the northwest corner of the F. M. Kinsey Survey, A-1,786. Humble Oil & Refining Co.'s No. 2 R. Hickman-B, 150 feet south and 200 feet east of the southwest corner of the J. McGloin Survey, A-668, being 150 feet south and 200 feet east of the northwest corner of the F. M. Kinsey Survey, A-1,786.

Eastland County: Texwa Oil Co. and Kirk's No. 2 Mrs. L. E. Murrell and others-B, 150 feet north and east of the SW cor. SE SW, Section 29, Block 2, H.&T.C. Survey.

In Schleicher County: J. F. O'Harrow (formerly Underwood Oil Co.'s) No. 1 J. F. O'Harrow (formerly Louis Tisdale's) 2,310 feet north and 990 feet west of the SE cor., Section 61, Block M, G.H. &S.A. Survey.

In Young County: Perkins & Cullum's No. 5 J. L. Lemmond, 2,350 feet north and 1,800 feet west of the SE cor., Section 1, B.B.B.&C. Survey, A-35.

In Eastland County: G. Williams and others' No. 1 Mrs. J. C. Hutcheson, 1,455 feet north and 150 feet east of the SW cor. of the S. Dooley Survey. S. A. Hopkins and others' No. 1 J. W. Ray, 412 feet north and 507 feet east of the SW cor. of the SW of the SE of Section 69, Block 4, H.&T.C.

In Comanche County: George Putnam's No. 1 W. A. Owens, 650 feet south and 150 feet west of the NE cor. of the NW of the NE of Section 43, Block 2, H.&T.C.

In Pecos County: Landreth Production Corp and others' No. 1 University Land-I, 330 feet north and east of the SW cor. of the NE of the NE of Section 24, Block 18, University Land.

In Regan County: Big Lake Oil Co.'s No. 4-C University Land, 1,120 feet south and 1,096 feet west of the NE cor. of Section 1, Block 2, University Land.

In Shackelford County: O. P. Deener's No. 1 C. A. Bowman, 150 feet north and west of the SE cor. of Section 89, Block 12, T.&P.

In Wilbarger County: Empire Gas & Fuel Co.'s No. 24 W. T. Waggoner-B, 710 feet south and 205 feet west of the NE cor. of the SW of Section 32, Block 4, H.&T.C.

MOLECULAR WEIGHT OF ABSORPTION OIL

(Continued from Page 50)

absorption oils this cooling bath should be around 3 to 4 degrees Centigrade. The amount of supercooling should not exceed 0.2 to 0.3 degree Centigrade as may be shown from the above equation. The stirring should not be too rapid, and should be as uniform as possible; an up and down movement of the stirrer at the rate of once per two seconds will be sufficient. It is also essential to always tap the thermometer with the finger before reading, as the mercury tends to hang to the wall of the capillary tube.

Setting Beckmann Thermometer

In setting the Beckmann thermometer it is convenient to hang it in a beaker of water, the temperature of which is regulated according to the experiment, in this case about 8 degrees Centigrade, and see whether or not the top of the mercury column stands on the scale. Suppose that it does not rise as high as the scale. In this case, place the thermometer in a bath such that the mercury is driven up to the top and forms a drop at the end of the capillary. Now invert the thermometer and tap gently to cause the mercury in the reservoir to join the mercury in the capillary.

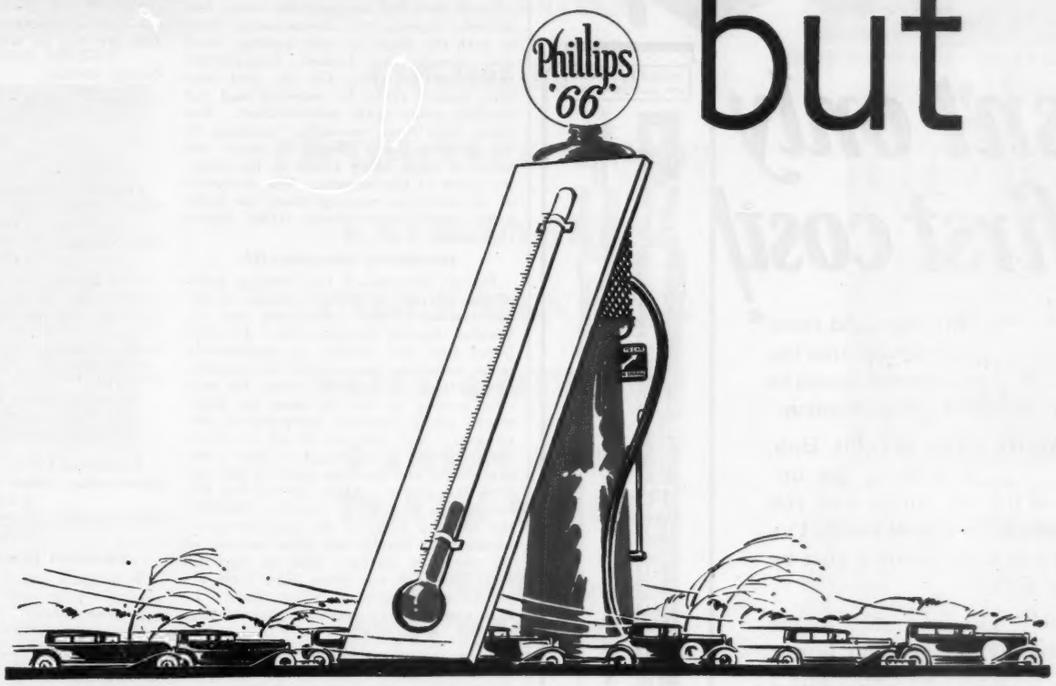
Next turn the thermometer slowly right side up and if quite warm hold it just past a horizontal position until the mercury takes up room temperature. Now place the Beckmann in about an 8-degree Centigrade bath until the thermometer has taken up this temperature, when the upper end of the thermometer should be struck against the palm of the hand causing the capillary mercury to break from that in the reservoir. On testing at the required temperature the mercury should just be 1 or 2 degrees below the top scale graduation. This setting should always be done 24 hours before the test.

Molar Weight Determination

For determining the molar weight of a substance in benzene the apparatus should be assembled and checked to see that the stirrer does not strike the bulb of the thermometer. Introduce a known weight of benzene, say 22 grams, into the freezing tube. The Beckmann thermometer should previously have been set such that at 5.4 degrees Centigrade, which is the freezing point of the solvent, the mercury stands not lower than the middle of the scale. Dry the thermometer and insert it, along with the scratching device, in the freezing point tube, so that the bulb is completely immersed in the benzene. Fill the cooling vessel with water and ice so that a temperature of about 3 to 4 degrees Centigrade is obtained. This can be regulated accurately enough by varying the amount of ice and water. The freezing point of the benzine is then determined.

In doing this, make a first approximate determination by placing the freezing point tube directly in the cooling bath so that the temperature falls comparatively rapidly. When solid begins to form, quickly dry the tube and place it

WE CAN'T CONTROL THE WEATHER . . . but



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"Frankly, I'm astonished at the low repair bills on your pump. And, let's see, we didn't find a single labor bill for a 'wet' tubing-job. Did we?

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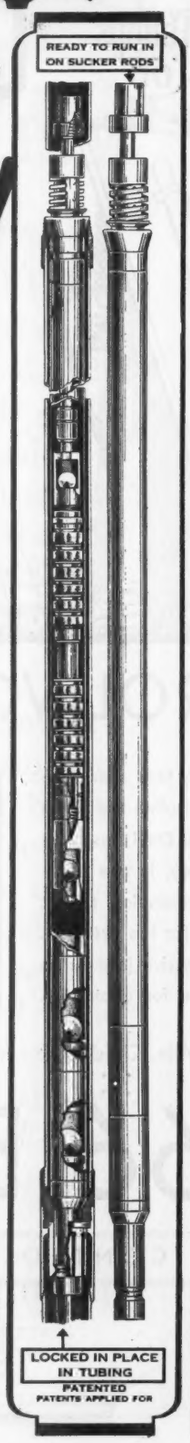

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in the air mantle in the cooling bath; stir slowly and read the temperature when it becomes constant. Now withdraw the tube from the mantle and melt the solid benzene by warmth from the hand. If in this operation the temperature of the liquid is raised more than about 1 degree above the freezing point, replace the tube again directly in the cooling bath and allow the temperature to fall within one-half a degree of the freezing point previously determined.

Then quickly dry the tube and place again in the air mantle, allowing the temperature to fall, meanwhile stirring continuously. When the temperature has fallen from 0.2 to 0.3 degree below the approximate freezing point found above, use the scratching device. This will generally cause solidification immediately, and the temperature will then begin to rise. Stir slowly and with the help of a lens, read the temperature every few seconds, tapping the thermometer firmly with the finger at each reading. Note and record the highest temperature reached, after which the solidified benzene should again be remelted and the freezing point again redetermined. Not fewer than three concordant readings of the freezing point should be made, the mean of these being taken as the freezing point of the benzene. The deviation of the separate readings from the mean value should not exceed 0.002 degree Centigrade.

Introducing Absorption Oil

Having determined the freezing point of the solvent, a weighed amount of absorption oil is now introduced into the benzene through the side tube. It is believed that this method is considerably more accurate than where the samples are pipetted, for in such cases, the specific gravity of the oil must be determined which involves temperature corrections. The amount of oil so introduced should be sufficient to give a depression of the freezing point of not less than 0.1 degree. After the oil has dissolved and a uniform solution obtained, the freezing point of the solution is determined in exactly the same manner as for the pure solvent; first an approximate and then not fewer than three accurate determinations being made. In each case note the degree of supercooling.

Two further additions of oil should be made, and the freezing point of the solution determined after each addition, the total weight of oil added never exceeding 0.3 to 0.4 grams. Now from each set of determinations, calculate the molar weight of the solute as follows:

$$\text{Molar weight} = \frac{(5{,}120)\ (\text{weight of oil})}{(\text{weight of benzene})\ (\text{degree lowered})}$$

Accuracy of Method

In order to give an idea of the degree of accuracy possible by the use of the cryolitic method a determination made on chemically pure acetone is presented here in detail. Three different concentrations were used and the freezing point checked in each case. Each time the degree of subcooling was noted and then the rise in temperature read at intervals as shown in the accompanying table. The freezing point of the benzene gave a Beckmann reading of 4.471.

Molecular Weight Determination for C.P. Acetone

(1)—21.834 grams of benzene plus 0.119 gram of acetone gives concentration 0.57 per cent by weight.

Cooling medium temp. deg. C.	A 3.7	B 3.7	C 3.7
Beckmann reading ..	3.670	3.683	3.691
	3.966	3.989	3.963
	3.988	3.990	3.990
	3.988	3.991	3.993
	3.990	3.991	3.993
	3.990		

Lowering of freezing point 4.471 minus 3.991 gives 0.480 degrees Centigrade.

$$\text{Molar weight} = \frac{5{,}120 \times 0.119}{21.834 \times 0.480} \text{ gives } 58.10.$$

(2)—21.834 grams of benzene plus 0.241 gram of acetone gives concentration 1.09 per cent by weight.

Cooling medium temp. deg. C.	A 2.8	B 2.8	C 2.8
Beckmann reading ..	3.300	3.299	3.279
	3.493	3.488	3.492
	3.504	3.501	3.499
	3.505	3.503	3.502
	3.505	3.503	3.504
			3.504

Lowering of freezing point 4.471 minus 3.504 gives 0.967 degree Centigrade.

$$\text{Molar weight} = \frac{5{,}120 \times 0.241}{21.834 \times 0.967} \text{ gives } 58.43.$$

(3)—21.485 grams of benzene plus 0.385 gram of acetone gives concentration 1.76 per cent by weight.

Cooling medium temp. deg. C.	A 2.7	B 2.7	C 2.7	D 2.7
Beckmann reading	2.730	2.693	2.695	2.702
	2.876	2.898	2.890	2.897
	2.873	2.903	2.906	2.904
	2.875	2.910	2.908	2.907
	2.880	2.910	2.908	2.909
	2.880			2.909

Lowering of freezing point 4.471 minus 2.909 gives 1.562 degrees Centigrade.

$$\text{Molar weight} = \frac{5{,}120 \times 0.385}{21.485 \times 1.562} \text{ gives } 58.80.$$

Graphical Extrapolation Method

It is known that the laws of osmotic pressure hold only when the solutions are very dilute. Therefore it is not strictly correct to determine the lowering of the freezing point by means of a solution of finite concentration, as has just been done in the above example on acetone. To determine the true molecular weight a solution of infinite dilution would have to be employed. As this is not readily possible recourse is had to a graphic method. With this method, the depression of the freezing point is noted for at least three concentrations, calculating the molecular weights for each case as has been done for acetone. These molecular weight values are then plotted against the concentrations, as in Figure 2, and by extrapolation of this representative line back to zero concentration, it is possible to obtain results of sufficient accuracy for the purpose in hand. For instance, with the case under discussion, the molecular

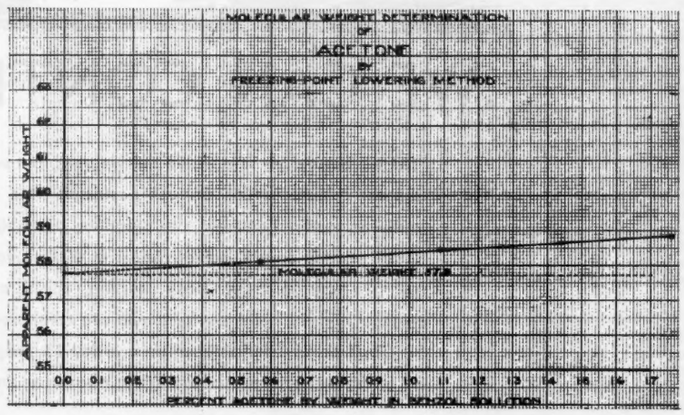
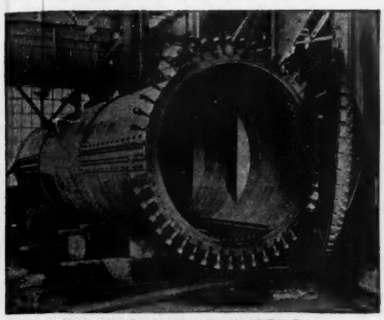


Figure 2—Molecular weight determination of acetone by freezing-point lowering method.

Oil Refining Equipment



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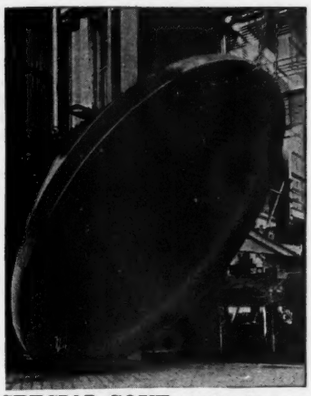

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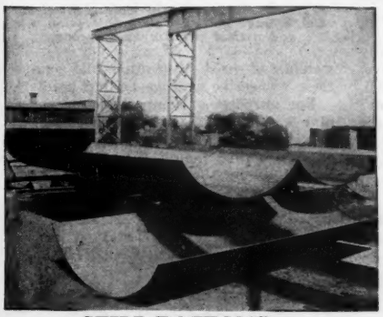

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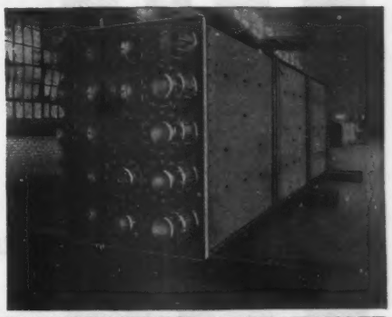

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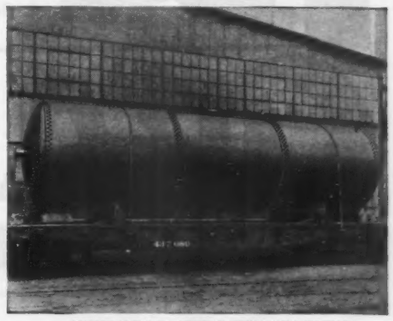

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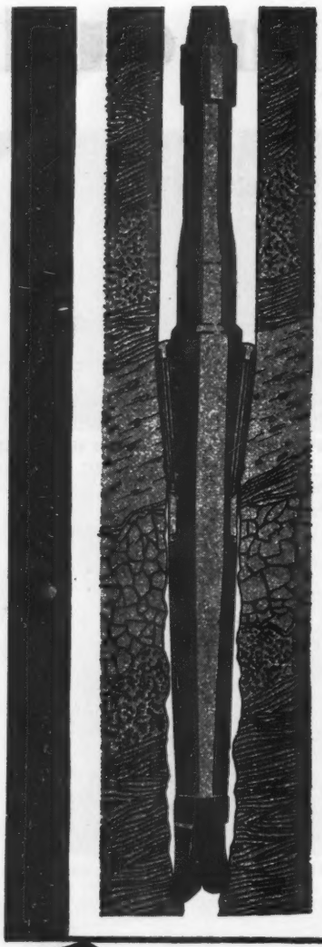

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weight as determined is 57.80 as against that given in literature of 58.06.

In every case, using dilute solutions, it has been found that the determined molecular weight increases with the concentration of the solution employed in the determination. Plotting these molecular weights against the corresponding concentrations results in a curve, which, fortunately, has been found to be practically a straight line for the concentrations below 1½ per cent. For this reason we employ three concentrations covering the range of 0.5 to 1.5 per cent by weight, and consider the molecular weights so determined as falling upon a straight line fixed by these three points. This assumption is of course not strictly true in all cases, and neither is it possible to make the necessary three determinations without the introduction of experimental errors. For this reason the supposedly true molecular weight obtained by extrapolation has been termed the "apparent molecular weight"; and this value will always be extremely close to the true theoretical figure such that it may be used freely without misgivings for all practical purposes.

Molecular Weights

This concept that molecular weights of absorption oils as determined by the freezing point method using benzene as a solvent are affected by the concentration of the solution used is not in accord with the recent literature of the subject. We have investigated this phase of the problem, however, and present a typical determination made on a used California absorption oil having an A.P.I. gravity of 39.8 degrees. The results are shown graphically in Figure 3, the detailed experimental data not being shown because of space requirements. The experimental points shown in Figure 3 represent actual laboratory determinations made at these various concentrations. As it is practically impossible to obtain reliable check results on concentrates below 0.5 per cent, the dotted line has been drawn through these lower regions by estimation from the remainder of the curve experimentally determined. For purposes of argument, had it been possible to actually determine the lower portion of this curve, the true molecular weight would be 138.5. By using the suggested "three-point" method, the apparent molecular weight was actually found to be 139.8, and it is obvious that this degree of agreement is quite excellent.

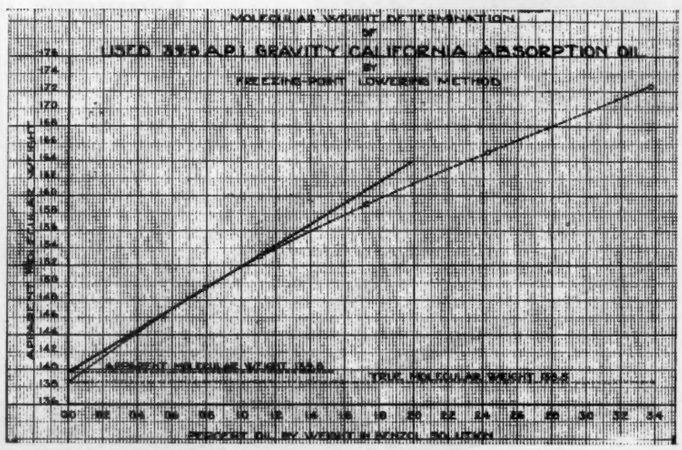

Figure 3—Molecular weight determination of used 39.8 A.P.I. gravity California absorption oil by freezing-point lowering method.

In passing, it would be well to add that the determinations given in Figure 3 required three days of laboratory work. Had only the three required points been obtained, which are always in a range where the greatest speed may be made, only one day of laboratory work would have been needed, resulting in practically the same degree of accuracy. In fact, we have seldom been able to reduce the time to obtain the three points to less than one day, which gives some idea of the technique required by the method.

Had we used the averaging method, so often suggested in literature for determining the molecular weight, using the higher concentrations as advocated, an entirely different and erroneous result would have been obtained. Using the four higher concentrations from Figure 3, namely, 1.11, 1.66, 2.42 and 3.36 per cent, and averaging the corresponding molecular weights, a result of 162.5 would have been obtained. This gives a molecular weight 16.2 per cent higher in value than that obtained by the "three-point" method.

Obviously, even the cryolitic method of molecular weight determination necessitates the development of a very tedious technique, so it was attempted to find some physical property of absorption oils which would correlate in some fashion with the molecular weights of the oils. With this end in view over 50 absorption oils were investigated.

Molar Weight and Boiling Point

First, it was attempted to correlate the average boiling point of the oils with their molecular weights. The average boiling points of the various oils were determined directly from their distillation curves by the use of a planimeter, the method used being similar to that employed for ascertaining the mean effective pressure of a conventional indicator card. In Figure 4 will be found the results of plotting the apparent molecular

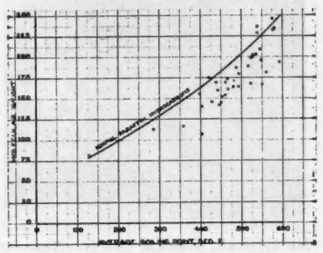

Figure 4—Comparison of molecular weights and average boiling points absorption oils and normal paraffin hydrocarbons.

weights of used absorption oils against their respective average boiling points.

For purposes of comparison the molecular weights of the normal paraffins are also plotted against their corresponding average boiling points. These results are illustrated by the solid curve in Figure 4. It is quite obvious that the prevailing method of determining molecular weight of an absorption oil from the normal paraffin curve when the average boiling point is known leads to considerable error. In fact, for the oils tested this error ranges from minus 6.6 per cent to plus 28.2 per cent, with 30 per cent of the values being plus 9 per cent higher than the apparent molecular weight as determined by the "three point" method.

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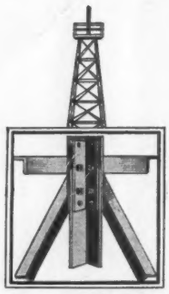

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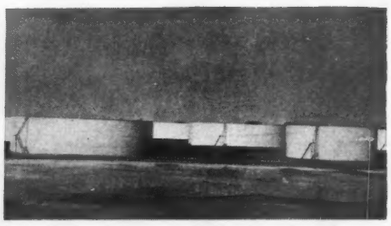

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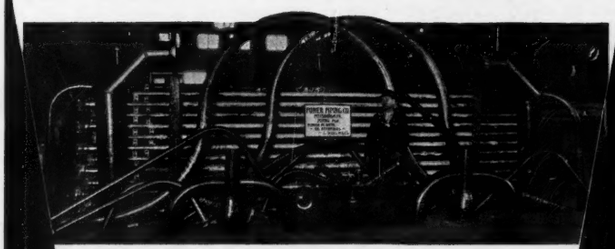

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weight of an absorption oil can be illustrated by the following example. The physical properties of isomeric compounds preclude this correlation, for the nearer a side chain is to the terminal carbon atom, the more the boiling point is lowered, i.e.:

Normal octane $CH_3—(CH_2)_6—CH_3$ ..... Boiling point 125.8 deg. C.

2—Methyl heptane $CH_3—CH(CH_3)—(CH_2)_4—CH_3$ ..... Boiling point 118.0 deg. C.

3—Methyl heptane $CH_3—CH_2—CH(CH_3)—(CH_2)_3—CH_3$ ..... Boiling point 117.6 deg. C.

2: 5—Dimethyl hexane $CH_3—CH(CH_3)—(CH_2)_2—CH(CH_3)—CH_3$ ..... Boiling point 109.2 deg. C.

2: 2': 3: 3'—Tetramethyl butane $CH_3—C(CH_3)_2—C(CH_3)_2—CH_3$ ..... Boiling point 104.0 deg. C.

Therefore a substance having a molecular weight of an octane (114) could have a boiling point ranging from 104 to 125.8 degrees Centigrade.

Molar Weight and Specific Gravity

Similarly, isomerism tends to prevent the linking of the molecular weight and the specific gravity of an oil. For instance, one of the five known hexanes has a specific gravity of 0.6583, while another has a gravity of 0.6701, and so on. For this reason, the molecular weight of an absorbent oil can not be determined from the gravity alone using the relationship existing between the specific gravity and molecular weight of the normal paraffin hydrocarbons. Such a method is often used, with the result that erroneous values are obtained. This is best brought out by the comparison made in the following table:

Constituent—	Octane	Octylene	Cyclo-octane
Specific weight	0.702	0.722	0.850
A.P.I. gravity	70.07	64.48	34.97
Molecular weight ..	114	112	112

Thus by the addition of cyclo compounds, in particular, the A.P.I. gravity of an oil would be lowered with the result that a high molecular weight would be obtained for the oil when estimating in this manner. Attempts at correlating other properties of the oils, such as viscosity, etc., met with no greater success.

Conclusions

Molecular weight determinations have been made on all oils investigated, Figure No. 5 being a typical example of the application of the method to a 35.8 A.P.I. gravity California absorption oil. Attempts to completely correlate this information have met with failure, and we conclude that the molecular weights of oils can only be arrived at accurately by making a separate determination upon each oil under discussion. The cryolitic method of making such determinations is suitably adequate, and when used in connection with graphical interpretation where extrapolation to zero concentration is carried out, results are obtained which are reliable within 2 or 3 per cent, which is sufficient for present purposes.

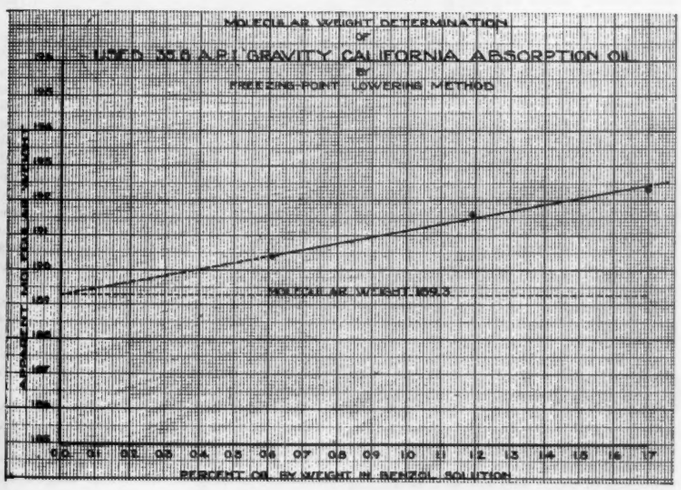

Figure 5—Molecular weight determination of used 35.8 A.P.I. gravity California absorption by freezing-point lowering method.

NORTHWEST ARKANSAS POSSIBILITIES SHOWN

(Continued from Page 74)

of March 27, 1924, on the question of finding oil along the Choctaw Fault, reviewed the carbon ratios of Western Arkansas and showed that it increases from McAlester eastward and reaches as much as 82 in the Fort Smith region and goes on up to 88 at Russellville. The matter of hardness or softness, porosity or nonporosity of these beds is of such importance that it is well to consider it at some length.

Roughly speaking, the carbon ratio of a coal bed is something of an index to the capacity of beds to carry commercial oil or gas. Anthracite coal, which is practically 100 per cent carbon ratio scale, is found under conditions that have subjected the coal (together with the overlying and underlying beds) to great pressure. This excessive pressure has squeezed as it were, all the volatile matter out of the coal (originally soft coal) and left but the carbon and the ash materials. Of course, the same pressure was applied to the other beds and squeezed the shale into slate, sands and sandstones into quartzites, etc., destroying their porosity. The writer has done engineering work in the anthracite mines of Pennsylvania and has a vivid picture of their structural conditions; in certain places, were a driller to put down a vertical hole he would seemingly encounter three separate and distinct beds of coal and would so log his well but these three would be but one and the same bed folded over itself twice. It is easily comprehended that such sharp folding accompanied by intense pressure would produce a high degree of induration and metamorphism that would cause the beds to approach granite in nonporosity.

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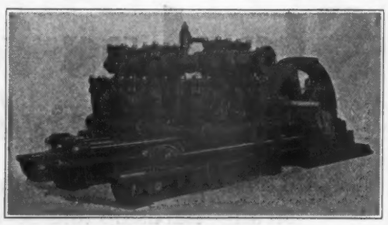

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See Classified Wants on Pages 146-147

any appreciable area, such as from McAlester to Russellville, its carbon ratio can serve as something of a guide to the oil and gas possibilities. Observations of the relation of production to carbon ratio, made in several states, have shown that nearly all oil is produced in areas having (or would have if coal were present) a carbon ratio of 5 or lower; that only light oil is produced from areas between a deadline above which no oil is expected. 55 and 60; and that 60 is something of a deadline above which no oil is expected.

Like any other factor used in seeking oil and gas, the suggestions offered by known carbon ratios must not be considered as an absolute law. For example, the carbon ratio in the Fort Smith region is so high that gas could hardly have been expected, but gas is found there in commercial quantities and by the same token light oil might be found in areas of high carbon ratio. Drilling done in the Fort Smith gas fields found beds so hard that progress was very slow—two inches of hole frequently resolved itself into but one inch of hole and one inch off the bit. Yet fairly loose sandstones were found carrying gas and there is no adequate explanation as to why these softer and easily-drilled beds are present among the hard ones. It is not known why these sand bodies are not as hard as the others.

Cause and Effect

This brings up a question current these days. Why is it that loose, porous sands are found in producing structures yet these same sands are found hard and relatively nonporous surrounding the structure? Are these sands filled with oil because they are not cemented solidly or are they loose sands because they have oil in them? Which is cause and which effect?

Although these coal beds do not extend over all this portion of Arkansas, they give strong suggestion that nothing but gas can be expected in this synclinorium and along its south flank. As far east as White County the beds seem fully as hard as at Russellville. If any oil is ever produced within this area its gravity should approach that of the Rattlesnake Field of San Juan County, New Mexico, which has actually tested as high as 75 degrees A.P.I., corrected for temperature, and the field has been assigned a gravity of 65 degrees.

Oil and gas seeps are reported in some parts of this Arkansas area. One sample brought in from Yell County (not confirmed) is similar to this "Rattlesnake oil." Although it is possible to find light oil, the operator who drills in this area should limit his hopes and expectations to gas—meaning, of course, all this area except on and along the Boston Mountains.

Drilling

Mention has been made of the difficult drilling in the Fort Smith gas fields. Going eastward to the very easternmosts limit of the Paleozoic outcrops, a well was drilled in White County near Judsonia by the Louisiana Oil Refining Corporation to a depth of 3,140 feet and at a cost of $100,000, with no showings reported. This Judsonia well, as it is called, (NW cor. Section 29-8n-6w) is located on the high part of a sharp fold and should have given at least some showings of gas. Another well is drilling in the town of Letona, 9 miles west by 4 miles north of the Judsonia well, has reported several gas showings—one as much as 500,000 feet—at drilling depths less than 3,000 feet, and it offers some promise of making a commercial well. This Letona well is seemingly located far down the northwest flank of the Judsonia structure. The beds are sharply folded and somewhat faulted at the Judsonia and gentler as Letona is approached. well, whereas the dip is much smoother The condition exhibited here would suggest that drilling should be done on structures that are less sharply folded and it might be better to make locations down to flank towards the bottom of the regional syncline. Perhaps these beds, in general, are nearly nonporous and that just a little extra folding and crumpling is all that is required to completely seal them off from oil and gas; that portion of the structure most crumpled could be entirely nonporous, yet enough open spaces down the flank for commercial gas.

Gas wells would be small but probably of long life. Closer spacing would be necessary to develop the field, hence there would be a greater number of these costly wells to drill. It seems evident that any gas field of large daily capacity will be costly to develop.

Conclusion

Prospecting in this metamorphosed part of Arkansas will be costly and will require much time in drilling, but will stand a fair chance of producing natural gas and a very remote chance of finding small wells of unusually light oil.

Structures are plentiful and care must be taken in making selection rather than in merely finding anticlinal folds. Preference should be given to the low flat anticlinal folds having but slight uplift and gentle slopes. If sharp folds are drilled, the best location need not be on the highest part but preferably down one side.

The south side of the Boston Mountains is an area that offers special advantages in that the beds are but slightly indurated, and because drilling depths will allow prospecting below the Mississippian beds. Any satisfactory local structures should be drilled and some of them should produce much oil. The writer looks upon this particular area as one warranting large expenditures in oil prospecting.

MAKING DEEP TEST IN TERRELL COUNTY

(Continued from Page 74)

majority of the multitude of Comanchean structures in West Texas.

Numerous Comanchean structures in West Texas have proven dry and caused many geologists to minimize the importance of Comanchean surface geology. Two conditions mark a Comanchean structure reflecting subsurface folding: First great areal extent; second, relief above the replaced normal plain of the Edwards plateau. An outstanding example is the Yates Field, another the major nose of the McCamey Field.

The distribution of the Trinity Basement sands shows the major size of the Pandale structure. Normal southward dip of the Comanchean monocline carries the Basement sands under the Pecos River 5 miles north of Independence Creek in Terrell County. They reappear 10 miles farther south on the southeast flank of the Pandale structure, an upward displacement of approximately 200 feet. Replacement of the normal Edwards plateau shows a maximum relief on the structure of 150 feet. Both of the preceding facts exhibit the great magnitude of the Pandale-Stone Bend structure.

This fold is not the result of settling over a Carboniferous ridge because the unfolded condition of the Comanchean over the 100 to 200-foot hogbacks of Dimple limestone in the Glass Mountains disprove any such theory.

Attention is called to the contrast between the knife edge character of the southermost fold and the flat broad nature of the north fold. The large faults indicate folding of abnormal magnitude.

Carboniferous Exposure

The exposure of Permo-Pennsylvanian where the axis of the structure crosses the Pecos River consists of bedded gray limestone. No Trinity Basement sand is present, the exposure being in contact with overlying similar colored Comanchean limestone. A conglomerate of recent age obscures the attitude of the Carboniferous beds. The general dip appears to be southwest although the north portion of the exposure is broken with dips running up to several degrees and the south portion is nearly flat. Preliminary determination of the fossils places the age as Wolfcamp in one case and Cisco in the other. A natural conclusion is to place the age at the contact of the Permian and Pennsylvanian.

The sulphur spring 7 miles north of the axis of the structure is significant in that bubbles of sulphur gas are escap-

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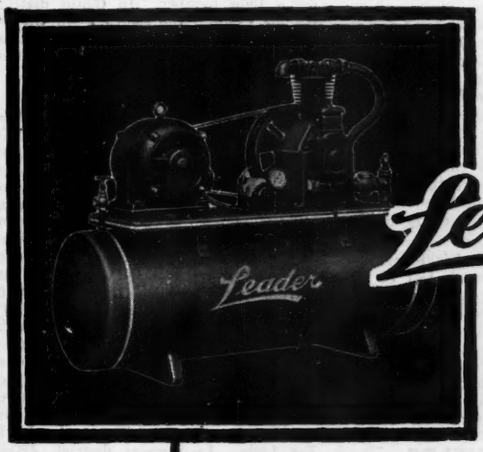

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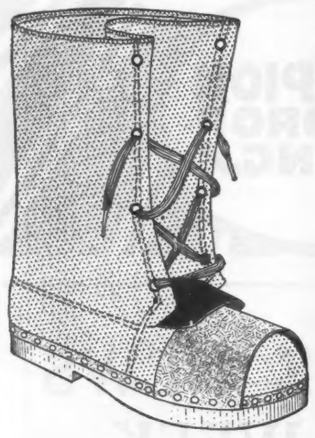

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ing with the small flow of sulphur water. Sulphur water alone would be of no particular importance.

Ector County—Yates Trend

In the majority of cases, producing fields of West Texas assume position on major trends. Such a trend contains from north to south the oil fields in the following table:

Field—	Depth of pay feet
Ector County	3,700
McElroy-University	2,800
McCamey	2,250
Yates	1,200

The Pandale structure assumes an echelon position on the southward extension of this general trend from the Yates Field through the Sheffield syncline. Note that the Permian oil pay progressively decreases in depth southward over the 120-mile trend.

Subsurface Conditions

The great distance between tests in the immediate area of the Pandale structure prevents satisfactory correlation of formations. A feature of the situation is the ring of black shale wells around the Owens-Mills and the Sun-Scott, namely, Valvert-Bassett, Milham-Bassett, Humble-University, Bolen and others-Coates, and Plymouth-Blakeney, all of which did not reach the sand zone present in the Owens-Mills and the Sun-Scott. Such condition coupled with the good gas shows in the Owens-Mills and Sun-Scott can only be explained by a subsurface fold of considerable magnitude.

Although the gas encountered in the Owens-Mills is of small volume, it builds up good rock pressure indicating a reservoir of some size rather than a short-lived pocket of gas. Furthermore, the noticeable gasoline content of the gas is significant in the search for oil on the structure.

The next factor is the possibility of securing oil and gas production. This factor depends on source rock for the oil and gas and porous reservoir beds. A thick black shale series in the surrounding tests offer an abnormal amount of source material. The Sun-Scott and the Owens-Mills have sufficient sand for excellent reservoirs. In the Owens-Mills, the sands are tight, a condition that may be due to sharp tight folding marked by the surface fold. In the Sun-Scott, more water sands were encountered in the Pennsylvanian than in practically any other test in West Texas. Salt water from three different horizons rose 2,000 feet, this condition coupled with the test's position on the flank of the Pandale structure indicates excellent porosity on the north high.

The Transcontinental 5,000-foot well should be a more thorough test of this structure than the Owens-Mills because it is located on the gentle dipping high of greatest areal size and in the area of best porosity. Interpretation of a cross section of deep dry holes from Big Lake to Pandale indicates that the 8,500-foot producing horizon at Big Lake should be tested by the Transcontinental well.

EASTERN FIELDS

(Continued from Page 70)

sand. In the same district, the Virginian Gas & Oil Co. cleaned out and shot its test on the Eva D. Hathaway farm, increasing its production from 5 to 10 bbls. a day.

Starting and Drilling Tests

In Lincoln district, Tyler County, Neeley & Co. are due in the Big Injun sand on the D. C. Smith farm. In Cass Township, Monongalia County, the Carnegie Natural Gas Co. has started to drill on the Rufus L. Lazzell farm. In McComas district, Cabell County, the Hamilton Oil & Gas Co. has started to drill on the John T. Markin farm and has made a location on Jennie Keene farm. In Barbersville district, the United Fuel Gas Co. has started to drill on the A. B. Childers farm. In Scott district, Boone County, the Owens Bottle & Machine Co. has made a location on the Cora Barker farm. In the same district, the same company has started to drill on the F. T. Miller and Leander Pauley farms. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has made a location on the Wiley B. Evans farm. In Clay district, Wetzel County, the Pittsburgh & West Virginia Gas Co. has started to drill on the J. B. Pettit farm.

In Sherman district, Calhoun County, Godfrey L. Cabot has made locations on the W. T. Raferty, Laura V. Ash and J. J. Benney farms. In Lee district, same county, Edward Smith & Co. are rigging up on the John Slider farm. In Sherman district, the Southeastern Gas Co. has started to drill on the Hannah A. Linger farm. In Center district, the Hope Natural Gas Co. has started to drill on the E. B. Stevens farm. In the same district, W. H. Bickel has a rig up on the C. H. Barlous farm. In DeKalb district, Gilmer County, the Philadelphia Natural Gas Co. is testing for oil on the M. E. Batton farm. In Otter district, Braxton County, the United Gas Co. has a rig up on the Israel G. Engle farm.

Wirt County

In Burning Springs district, Wirt County, Edward Nelly & Co. have started to drill on the C. Nelly farm. In Grant district, Ritchie County, Park Bowser has started to drill on the H. C. Cunningham farm. In Union district, the Reno Oil Co. is due in the sand on the J. M. Echard farm. In Grant district, the Sycamore Oil Co. has started to drill on the Oliver Carpenter farm. In Union district, Pleasants County, L. C. White & Co. have started to drill on the R. H. Browse farm. In Walker district, Wood County, the Penn Royal Oil Co. is moving a drilling machine to a location on Charles Smith farm. In Geary district, Roane County, I. L. Storts has made a location on the J. N. Keene farm. In the same district, the United Fuel Gas Co. is rigging up on the Isabella A. McCann farm.

On Hughes River, Clay district, Wirt County, the Garrity & Burk Oil & Gas Co. completed in the Big Injun sand No. 7 on the T. S. Showalter farm, showing for a light pumper. In Grant district, Ritchie County, the South Penn Oil Co. has completed a test on the Cunningham farm. It is a gasser good for 1,800 feet and spraying a little oil.

Gilmer County

On Big Run, Troy district, Gilmer County, the Carnegie Natural Gas Co. has the rig completed for another test on the J. W. Rymer farm. On Little Cove Run, same district, same company has a rig completed on the Woofter farm. On the same stream the same company has a rig up on the John V. Young farm. In Union district, Ritchie County, the Central Development Oil & Gas Co. has started to drill on the L. S. Goff farm.

In DeKalb district, Gilmer County, McCall & Co. have a rig up on the M. F. Frymyer farm. In Sherman district, Calhoun County, the Hope Construction & Refining Co. has started to drill on the F. S. Barr farm. In Curtis district, Roane County, the Parsons Oil & Gas Co. has started to drill on the L. B. Bee farm. In Spencer district, Jefferson Miller & Co. have started to drill on the E. D. Cutright farm. In Smithfield district, Roane County, the Ohio Valley Gas Corp. is due in the sand on the D. S. Harless farm. In Grant district, Ritchie County, Rexroad & Co. have started to drill on the J. W. P. Cain farm. In the same district, J. F. Deem & Co. have a rig up on the W. W. Lorence 3 acres.

SOUTHWEST PENNSYLVANIA

In Smith Township, Washington County, the Howe Oil & Gas Co.'s test on the N. R. Morgan farm is a 10-bbl. pumper. In Hanover Township, John Duncan has a 2-bbl. pumper at a second test on the M. Stevens farm. In Hanover Township, Beaver County, Armer & Co. are drilling a test on the George Armer farm. In Mount Pleasant Township, the Cowden Oil & Gas Co. is due in the sand on the Scott heirs' farm. In Cecil Township, R. C. Mason & Co. are due in the sand on the Welsh Brothers farm.

In Whitely Township, Greene County,

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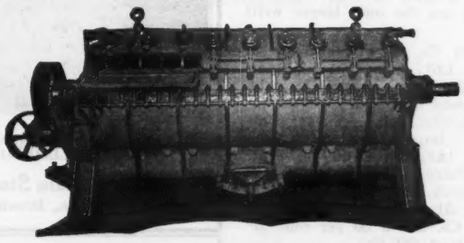

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the Equitable Gas Co. has completed at 3,000 feet a test on the Spencer Colwell farm. It is a gasser. In Dunkard Township, the same company has completed a test on the Rachael Lynch farm. It is a fair gasser in the Big Injun sand.

In Dunkard Township, the Carnegie Natural Gas Co. has completed the following wells: No. 1 on the Ermi Smith farm; in Whitely Township, No. 1 on the Thomas Breemer; No. 1 H. M. Fordyce; No. 1 James Neill, and No. 1 Charles Brewer. All are fair gas wells.

In Springhill Township, Greene County, the Carnegie Natural Gas Co.'s second test on the G. W. Plants farm is a gasser in the Fifth sand.

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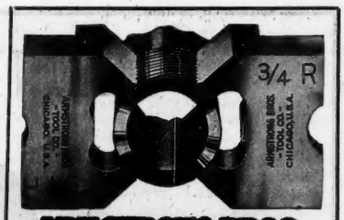

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR SEPTEMBER

Runs

	Month	Dy. av.
Prairie P. L. Co.*	5,100,000	170,000
Gulf P. L. Co.	2,146,332	71,544
Texas P. L. Co.	779,039	25,968
Magnolia P. L.	1,967,530	65,584
Empire P. L. Co.	1,704,032	56,801
Cosden P. L.	841,285	28,043
Sinclair P. L. Co.*	3,066,000	102,200
Oklahoma P. L. Co.	3,361,011	112,034
Other lines*	6,217,500	207,250
Total September	25,182,730	839,424
Total August	26,253,728	846,894
Difference	1,070,998	7,470

Shipments

	Month	Dy. av.
Prairie P. L. Co.†	6,552,482	218,416
Gulf P. L. Co.	1,899,684	63,323
Texas P. L. Co.	1,251,480	41,716
Magnolia P. L. Co.	2,198,026	73,268
Empire P. L. Co.	1,481,630	49,388
Cosden P. L. Co.	827,229	27,574
Sinclair P. L. Co.†	3,320,879	110,696
Oklahoma P. L. Co.	3,250,403	108,347
Other lines*	6,300,000	210,000
Total September	27,081,813	902,728
Total August	28,695,007	925,645
Difference	1,613,194	22,917

Stocks

Prairie O. & G. Co.	37,600,000
Gulf P. L. and Gypsy Oil	10,237,633
The Texas Company	7,969,471
Magnolia Petroleum Co.	9,423,863
Empire P. L. Co.	5,219,647
Mid-Continent Pet. Co.	3,319,518
Sinclair Crude Oil Pur. Co.	20,340,000
Carter Oil Co.	10,089,102
Oklahoma Pipe Line Co.	3,443,542
Other crude stocks*	27,000,000
Total September	134,642,776
Total August	134,563,144
Difference	79,632

*Estimated. †Prairie and Sinclair shipments include crude oil produced in Texas.

EASTERN PIPE LINE REPORTS

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September:

	Aug. '29	Sept. '29
Nat Transit	307,546.82	294,748.89
S W Pa P L	92,316.36	89,643.06
Eureka P L	373,176.67	357,703.92
Buckeye P L (Macksburg)	334,947.96	331,438.55
Buckeye P L (Cleve)	13,089.95	10,770.51
Buckeye P. L (Lima, etc.)	130,364.10	103,534.37
Indiana P L	5,572.79	5,270.40
Cumberland P L	197,780.44	188,201.35
N Y Transit	31,452.26	30,538.20
Tide Water P L	230,916.87	59,187.70
Pure Oil	207,822.79	240,330.38
Emery P L	73,262.76	
Par'gon Dev	13,721.38	13,427.85
Stoll Oil Ref	5,384.49	4,827.82
Bradford Tran		289,323.57
Total	2,067,286.14	2,019,446.57
Daily avg.	66,686.68	67,314.88

Note—Indian Refining Co. also reported other receipts of 451,248.24 bbls. Paragon Refining Co. had other receipts of 169,175.56 bbls. Paragon Development had other receipts of 507.72 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for August and September:

	Aug. '29	Sept. '29
Nat Transit	433,236.88	502,982.59
S W Pa P L	360,915.13	354,433.46
Eureka P L	282,805.08	230,056.08
Buckeye P L (Macksburg)	185,208.11	234,242.65
Buckeye P L (Cleve)	2,185.04	2,182.54
Buckeye P L (Lima, etc.)	1,593,076.04	1,632,220.66
Indiana P L	1,426,167.56	1,379,905.31
Cumberland P L	201,459.97	208,737.10
Southern P L	36,341.20	92,625.44
N Y Transit	290,004.27	279,908.63
Northern P L	192,966.11	168,857.71
Tide Water P L	249,359.87	211,086.95
Pure Oil	214,322.99	248,121.86
Emery P L	75,477.85	
Paragon Ref	174,796.43	170,090.96
Paragon Dev	14,507.08	12,326.20
Bradford Tran		308,652.35
Total	5,733,319.61	6,036,420.79
Daily avg	184,945.79	201,214.02

Indian Refining Co. reported other deliveries of 362,506.75 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of August and September:

	Aug. '29	Sept. '29
Nat Transit	689,249.61	654,825.92
S W Pa P L	551,844.06	556,527.00
Eureka P L	1,338,075.04	1,415,789.95
Buckeye P L (Macksburg)	434,154.83	394,708.80
Buckeye P L (Cleve)	58,890.03	56,858.66
Buckeye P L (Lima)	2,721,519.25	2,860,912.26
Indiana P L	668,771.87	575,104.03
Cumberland P L	556,916.14	539,326.53
Southern P L	399,390.51	387,726.89
N Y Transit	201,133.36	167,745.27
Northern P L	432,718.68	365,819.17
Tide Water P L	1,028,430.16	955,021.33
Pure Oil	16,303.76	15,318.69
Emery P L	10,275.09	
Paragon Ref	11,989.49	10,799.07
Indian Ref	50,525.66	141,337.05
Paragon Dev	4,645.76	6,461.28
Tuscarora	264,809.29	265,097.04
Bradford Trans.		73,688.01
Total	9,440,642.59	9,443,066.95
Increase	229,047.24	2,424.36

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of August and September showing the gross stocks of the above fields:

Penn'a	3,279,178.01	3,341,064.05
Lima	648,102.38	574,215.23
Kentucky	767,210.90	713,582.53
Mid-Cont	4,457,893.11	4,519,635.67
Illinois	288,258.19	294,569.47
Total	9,440,642.59	9,443,066.95

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
Jan.	55,630	56,209	52,904	51,749
Feb	60,394	61,298	57,002	51,833
Mar.	61,644	63,247	57,485	54,252
April	63,019	60,927	56,812	58,444
May	60,580	60,284	62,067	59,902
June	61,121	62,757	58,230	58,833
July	63,206	58,674	57,144	66,087
Aug.	61,815	60,870	57,745	66,687
Sept.	64,639	60,285	53,487	67,315
Oct.	161,132	147,080	58,100	.....
Nov.	67,774	57,275	53,565	.....
Dec.	58,755	53,089	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
Jan.	156,056	141,227	146,465	165,721
Feb.	159,488	138,534	167,368	159,387
Mar.	150,239	133,777	158,883	161,474
April	152,374	140,227	172,935	169,737
May	160,998	144,594	180,559	184,281
June	160,267	149,772	188,024	185,404
July	160,045	151,850	189,470	194,763
Aug.	151,929	188,653	192,853	184,946
Sept.	158,915	144,213	194,138	201,214
Oct.	161,132	147,036	176,000	.....
Nov.	172,608	150,975	176,898	.....
Dec.	136,428	144,540	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
Jan.	9,718,008	12,276,710	7,596,564
Feb.	10,119,162	12,180,419	8,738,835
Mar.	10,794,044	12,239,725	9,002,058
April	11,112,295	11,740,135	8,978,172
May	11,359,381	11,602,468	8,903,560
June	11,493,673	11,287,678	8,931,275
July	11,458,128	10,819,331	9,211,595
Aug.	11,989,115	10,236,743	9,440,642
Sept.	12,212,716	9,660,910	9,443,067
Oct.	12,047,661	9,229,709	.....
Nov.	11,939,740	8,366,553	.....
Dec.	12,340,297	7,539,555	.....

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Runs	Shipments	Stocks
Sept.	2,820.31	5,255.42	15,286.93
Oct.	1,289.93	538.89	17,551.93
Nov.	2,663.53	788.47	19,426.99
Dec	3,053.60	3,167.53	19,426.99
1929 —			
Jan.	2,099.90	.....	19,313.06
Feb.	2,469.47	4,873.20	17,009.22
Mar.	3,330.82	3,595.01	16,745.04
April	4,864.07	4,243.59	17,365.52
May	2,688.59	2,455.54	17,598.57
July	2,947.62	3,329.35	4,503.48
Aug.	2,742.73	2,889.47	4,356.74
Sept.	2,925.71	2,897.34	4,385.11

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois.

Gross stocks, Oct. 1	2,269,619.82
Runs from wells	556,002.64
Other receipts	301,231.54
Regular deliveries	637,220.53
Other deliveries	367,614.72

The amount of Illinois oil run by the Tidewater Pipe Co. in September was 26,455.02 bbls. Deliveries were 32,727.19 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
Oct.	626,147.64	626,290.40
Nov.	576,332.88	702,539.93
Dec.	584,633.00	491,517.26
1929—		
Jan.	570,727.38	545,084.66
Feb.	517,330.17	503,387.70
Mar.	728,319.67	586,049.60
April	515,374.27	654,297.96
May	608,981.60	673,812.83
June	568,454.70	818,845.97
July	611,106.79	828,159.44
Aug.	625,351.99	746,425.06
Sept.	582,457.66	669,947.72

Tidewater Pipe Co., Ltd., also delivered in September, 268,016.93 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
February	14,214	.....	38,750	17,250	11,607	81,821	.....	.....	.....	.....	3,750	85,571
March	19,903	968	31,258	18,581	7,355	78,065	.....	.....	.....	.....	.....	78,065
April	16,667	.....	32,333	13,233	2,234	64,467	.....	.....	.....	.....	7,333	65,200
May	16,226	2,416	31,326	10,806	2,129	62,903	.....	.....	.....	.....	.....	62,903
June	14,866	3,167	23,100	10,300	6,100	57,533	.....	.....	.....	.....	.....	57,533
July	16,387	4,806	34,290	19,383	2,452	76,323	.....	.....	.....	.....	4,161	80,484
August	20,389	3,129	35,226	18,903	5,548	83,194	.....	.....	.....	.....	12,161	95,355
September	19,433	.....	31,834	11,900	6,200	69,367	.....	.....	.....	.....	4,800	74,167

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
February	13,750	15,071	135,179	32,750	17,893	214,643	.....	34,357	821	143	35,321	249,964
March	18,548	26,064	145,516	39,162	28,162	257,452	.....	42,581	2,322	.....	44,903	302,355
April	19,733	18,367	137,233	50,267	22,567	248,167	6,867	25,066	10,367	1,500	43,800	291,967
May	29,806	19,258	138,000	49,936	22,322	259,322	6,677	26,323	3,000	1,323	37,323	296,645
June	31,433	8,667	134,600	42,967	18,300	235,967	8,600	22,633	11,800	2,033	45,066	281,033
July	40,097	15,129	111,677	43,420	31,516	241,839	4,774	12,097	9,516	161	26,548	268,387
August	33,387	14,355	162,644	30,936	20,355	261,677	4,226	12,742	.....	1,484	18,452	280,129
September	32,967	9,000	136,633	54,300	32,900	265,800	6,900	22,900	5,367	1,333	36,500	302,300

GROSS PRODUCTION IN THE UNITED STATES FOR 12 MONTHS (REVISED)

(In Barrels of 42 gallons)

1928-29		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
October:	Month	19,430,992	23,431,071	22,176,852	3,058,460	2,652,484	1,836,221	3,571,822	3,612,000	78,769,902
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,963	116,516	2,540,964
November:	Month	19,907,526	22,078,630	20,791,798	2,977,800	2,476,080	1,801,914	3,388,870	3,348,000	76,770,618
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,559,889
December:	Month	21,574,703	22,425,732	22,180,102	2,988,400	2,521,571	1,846,841	3,289,040	3,581,000	79,407,379
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,528
January:	Month	23,385,939	22,575,874	23,412,226	2,861,641	2,453,526	1,807,887	3,076,070	3,429,000	82,012,163
	Daily average	754,385	728,254	755,233	92,311	79,146	58,318	66,970	110,936	2,645,564
February:	Month	23,300,707	20,464,164	20,816,209	2,557,968	2,154,194	1,589,930	1,965,656	3,113,000	74,941,228
	Daily average	796,454	730,863	743,484	91,356	76,936	56,068	70,202	111,184	2,676,472
March:	Month	24,324,729	20,838,262	24,353,592	2,951,076	2,303,724	1,756,153	2,195,823	3,586,000	82,314,359
	Daily average	784,669	672,202	785,761	95,196	74,314	56,650	70,838	115,677	2,655,302
April:	Month	23,295,060	20,235,290	23,493,097	3,112,740	2,188,680	1,702,479	3,035,030	3,524,000	79,636,376
	Daily average	776,502	674,513	783,102	103,758	72,956	56,750	69,501	117,467	2,654,546
May:	Month	24,053,351	21,345,453	24,489,101	3,665,099	2,200,158	1,713,261	2,252,522	3,379,000	82,617,945
	Daily average	775,915	688,563	789,965	118,229	71,618	55,267	72,662	135,139	2,697,353
June:	Month	24,634,627	20,661,113	24,698,029	3,636,150	2,112,270	1,699,581	2,180,752	3,387,000	83,299,521
	Daily average	820,821	688,371	823,267	121,205	70,337	56,653	72,692	129,567	2,779,984
July:	Month	26,796,627	22,371,935	26,969,989	3,867,157	2,137,047	1,716,488	2,360,326	4,489,200	90,659,730
	Daily average	864,407	721,675	869,997	124,747	68,937	55,370	76,156	143,200	2,924,489
August:	Month	27,323,353	22,429,492	27,490,489	3,816,555	2,086,083	1,764,973	2,475,016	4,340,000	91,622,961
	Daily average	878,495	723,532	886,787	123,115	67,293	56,934	79,936	140,000	2,956,902
September:	Month	26,104,264	21,402,390	25,987,102	3,780,690	1,959,720	1,718,250	2,346,480	4,200,000	87,498,896
	Daily average	870,142	713,413	866,236	126,023	65,324	57,275	78,234	140,000	2,916,647
	Total 12 months	282,031,578	260,159,425	286,863,587	39,273,736	27,265,527	20,933,973	27,190,917	44,948,000	989,667,993

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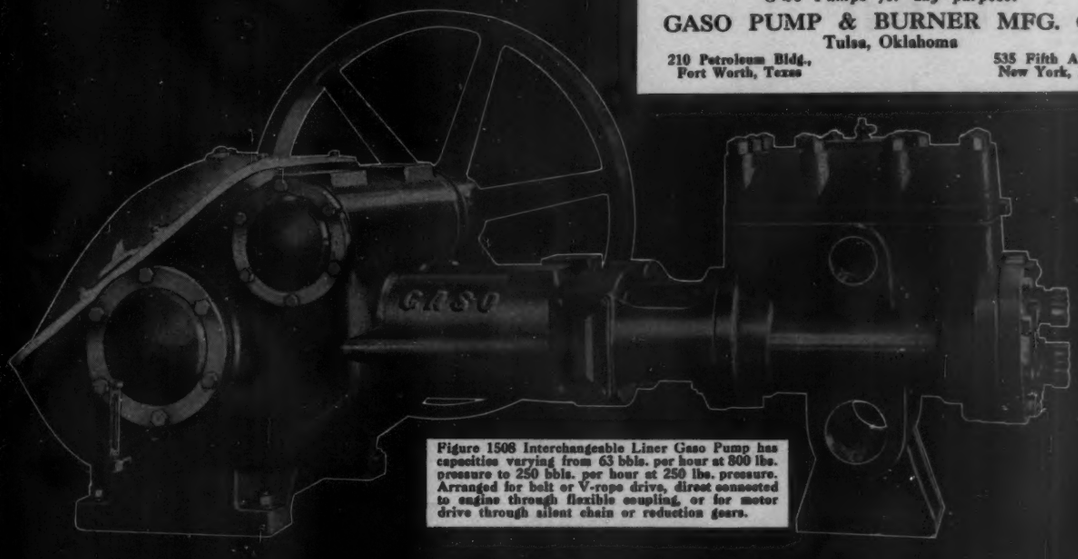

Figure 1508 Interchangeable Liner Gaso Pump has capacities varying from 63 bbls. per hour at 800 lbs. pressure to 250 bbls. per hour at 250 lbs. pressure. Arranged for belt or V-rope drive, direct connected to engine through flexible coupling, or for motor drive through silent chain or reduction gears.

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